WILD BIRDS THROUGH THE YEAR

GEORGE A. B. DEWAR

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WILD BIRDS THROUGH THE YEAR

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THE GLAMOUR OF THE EARTH

THE LEANING SPIRE

THE BIRDS IN OUR WOOD, ETC.

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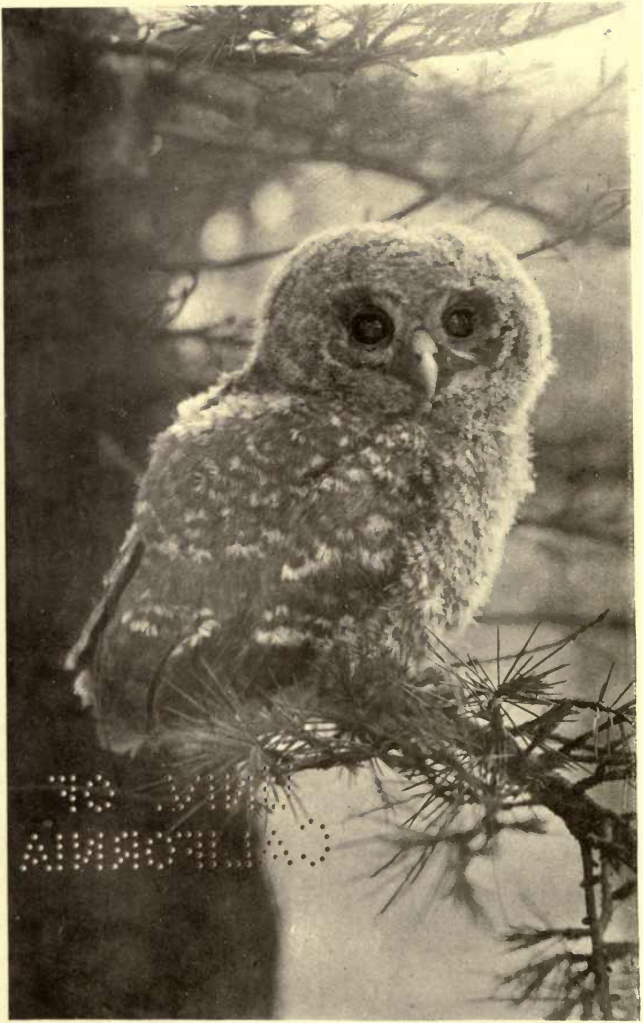

Photo, A. F. E. Roberts

"THE OWL, FOR ALL HIS FEATHERS—"

WILD BIRDS
THROUGH THE YEAR

BY
GEORGE
A. B. DEWAR

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TO

FLORRIE DEWAR

"AH! NOT LITTLE, WHEN PAIN
IS MOST QUELLING, AND MAN
EASILY QUELL'D . . . . . .
. . . . . IS THE PRAISE,
NOT TO HAVE YIELDED TO PAIN!"

—"*Heine's Grave.*"

855310

BIRDS

BIRDS have always been a passion with me; and I have always thought birds and their nests and eggs about the loveliest things on earth.

The first thing I can dimly remember seeing as a very small child was a bird's nest. It was a blackbird's, built in an ivied stump or stem of an old thorn tree against the park palings of Enham Place. Precisely the same feelings fill me to-day when I find the first song thrush's or the first blackbird's nest of the year, or the first chiffchaff's, that filled me as a child. I put it confidently to any man or woman who really is keen about birds—and I believe there must be a hundred thousand or so in England alone who are keen about them. Is there anything in nature or art that gives a more exquisite sensation than the discovery of these early Spring nests gives us year after year? Is there anything that gives a more delicate little thrill of pleasure?

There simply is *not*. There never can or will be.

No advance in knowledge and understanding of the most beautiful things in nature, art, literature and music can ever lift us above the intense admiration, the passion, for wild birds and their nests that somehow came all unconsciously into our lives, very likely before we were educated at all.

One does not live perhaps to grow more interested in birds than one began by being, for one began with a deep curious interest in them. But one does go on learning fresh things about them every year; finding new and very charming little facts about their songs, nests, change of plumage, emotions, language and wonderful way through the air. There seems no end to the study—except that terrible one of time's flight, and the end of ourselves pressing in upon us—

> "The bird of time has but a little way to fly,
> And lo! the bird is on the wing."

This chronicle of wild birds has been kept in many places—incidentally in Sicily, in the Apennines and in the Atlas Mountains, as well as in England. It partly springs out of a sort of diary of birds which, for several years running, I kept in the village of Church or East Oakley, by permission of the indulgent "Standard" and its readers. That was a very pleasant occupation; it caused me to spend long portions of many spring and summer days wandering about the country. Those are among the days when we do not merely exist—we live; days at the close of which we may even say with Cowley,

> "To-morrow let my sun his beams display
> Or in clouds hide them—I have lived to-day."

ILLUSTRATIONS

"THE OWL, FOR ALL HIS FEATHERS—" *Frontispiece*

TO FACE PAGE

SWALLOWS IN NEST 20

YOUNG LONG-TAILED TITS 62

YOUNG CUCKOO 76

LONG-TAILED TITS FEEDING THEIR YOUNG 114

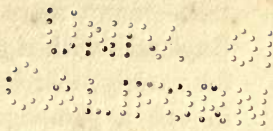
YOUNG KESTRELS 164

THE ROOK AND HER TREASURES . . 194

REED-WARBLER REACHING DOWN TO CLEAN OUT HER NEST 234

WILD BIRDS THROUGH THE YEAR

"THE WOOSEL-COCK, SO BLACK OF HUE,
WITH ORANGE-TAWNY BILL,
THE THOSTLE WITH HIS NOTE SO TRUE,
THE WREN WITH LITTLE QUILL."



I

THE DANDY IN GOLD

In the making of the swift, it is as if evolution had put all its force, æons of intense and concentrated force, into Speed; in the making of the wagtail, that force seems to have been spent on Beauty. The swift has beauty, too; but there the beauty lies in the marvellous fitness for the aerial work a swift is meant for. The wagtails have abundant beauty, beauty of form and carriage and colour and shading, beyond that of mere fitness for wagtail work. True, wagtails *are* finely fitted for their way of life, but they are far more than that. It is as if evolution, in fashioning the wagtails, was afire with the sense and longing for beauty. If we see in evolution the utilitarian in the tapering and planing of the swift for speed or in the marvellous fashioning of the salmon for spring, might we not imagine evolution as the æsthete in the fashioning and finishing of a wagtail?

Think of evolution fining and refining the figure of a wagtail till it is flawless to the eye. Then think of the exquisite additional touches, colour

touches. Evolution must paint three of the wagtails—many more than three, if we look beyond England—with a gold fine as the kingcup's. And, for variety, there must be several wagtail yellows—in one a gamboge, in another a sulphur. There must be blue or grey heads, black and white heads too. These colours and shades were no more worked up on the palette of Nature in a day than were the hills made in a day. It took evolution the æsthete, working with evolution the utilitarian, a long age to turn out this lovely family as we see it to-day.

Those dancing dandies, yellow wagtails, are all in England by May. Gould said we might take a special pride in them because England was about the only European country they chose to build in. I do not know whether that is so, but I know the bird is one of the loveliest things seen in an English meadow on great May days of green and blue. I suppose there never could be a yellow purer, brighter than this wagtail has on its throat and breast in May. He wears gamboge where the grey wagtail wears king's yellow, paler, I think—a little nearer sulphur, like the brimstone butterfly's.

I have just seen the yellow wagtails balancing and tripping so sweetly on a bit of rough ground by Fleet Pond where the ling has been scorched. They are not quite such water birds as the grey wagtails, or perhaps as the pied; still the water is sure to draw them where there is a place to their food fancy. And within fifty yards of my yellow wagtails was the little lake where, through the year, one can hear

the sharp "chissick, chissick" and see the long, bounding flight of one member or another of this family of exquisites. I went to the water-edge next morning to seek the yellow wagtails, but they may have been travellers merely resting a day or two at this tempting spot, for I saw them no more. However, the note of another wagtail, the pied, fell on my ear at once; and, indeed, on such a morning, at such a spot, a wagtail *must* be at the marge of the lake.

Pied wagtail, yellow wagtail and grey, all like to run along the ripple mark of the wavelets. It is in the spume of the sea-tide, or of the river below lasher and mill-race, that the wagtail finds its food. I have seen the grey wagtail running and flitting low along the edge of the Thames at Chelsea to take food out of the dirty froth of the thick brown tide; and through the winter pied wagtails, joining the rock pipits, run along the sands at the edge of the sea intent on the food in the tremulous froth.

Where the wavelets of the lake fine into ripples not an inch high, the wagtail trips, scarcely wetting a dainty foot! It knows well which side of the lake or river to visit for food—always the side into which the wind is blowing. The wind sweeps the insect life on the water on to the spume, and this is washed to the ripple mark where the wagtails run.

A GLORY OF BLACKBIRDS

There is no doubt about the loudness of the blackbird's full-throated song; but I have doubted

the saying that out of doors we can be too near it—that it is better for the listener if a field lie between himself and the singer. Unlike the thrush, the blackbird at his best seems to have not one shrill, bad note.

Only be out of doors on a delicate spring day—one of the sappy, larch-green days of rain and shine—and you cannot be too near the loudest blackbird. And as you cannot be too near blackbirds for the pleasure of the ear, so you cannot be too near for the eye. A blackbird is as good to look at in spring as to listen to. I have often heard him praised for the gloss of his plumage in spring. I confess this is the last thing I should praise a blackbird for. Perfect gloss and the shimmering blues and greens which often go with it are fine features of some birds. One admires them on the rook and the carrion crow, and on many a water bird's breast and back; the pheasant would not be half so splendid if he did not wear the interference colours, all shot and shimmer. But a cock blackbird in his full spring dress needs no heightening polish. He should look lamp-black. Soot suits him better than shine. Perhaps he looks best of all seen among the bare stems of March. He makes a picture then that may live long in the mind. I have seen a marshy coppice of willow and birch that perhaps Corot might have painted better than anybody; but set a sudden blackbird in the stems, and it seems as if only the genius of a Whistler could bring out the effect on canvas. The blackbird's spright and live-

ness in the midst of the still life of the leafless stems, his bold black and yellow against the neutral shades of the almost colourless coppice—these make such a contrast!

By the sandy chines that run to the sea the blackbird is more at home and far more plentiful than I ever found him elsewhere. Here, on and off, I have noticed the blackbirds during most of May, and once they have come into full and constant song it is quite common to hear three or four within a circuit of fifty yards. They sing and build and forage right down to the edge of the sea, at least to the end of the chine slopes, and are as plentiful as the willow wrens that are dropping in through April and early May.

The cluster pine is a favourite tree of the blackbird's, and one of his favourite perches is a large grey cone of the pine. There he sits and flutes in his easy, luxurious way. The sea-green foliage of the cluster pine and the grey of its cone serve well to set off his black and yellow.

With the blackbird, as with all other singing birds, it is not mainly the music that appeals to one; the quality of that happens to be really good in the blackbird as it is in the blackcap; but I am quite sure that the value of the song is not wholly on chiefly a sound value. Here—as when a sedge warbler, a thrush, a redbreast, or a skylark is singing—the environment, the ideas as to the beauty and charm of birds that are in the mind, count much. They count more, no doubt, than the intrinsic worth

of the sound. This is not so with the human voice. Environment often counts nothing in the song of a great singer. Everything here depends on the quality of the sound. The great appeal is to the ear.

But the best blackbird I ever heard was not our English bird—it was the Moorish blackbird. Wandering in the Atlas one day in spring, I heard a string of notes, indescribable in sweetness, coming from the infinite ancient tangle of a jackal-haunted dell. Elfin notes surely from some elfin singer of that African forest! I think I shall remember that blackbird when I have forgot all the others I have heard.

FAERY-FINE

In the underwood of three or four years' growth I found myself among a full score of garden warblers, some of them in full song; whilst around me were nightingales and whitethroats; but no blackcaps and no lesser whitethroats. I think the garden-warblers had just reached this spot, and were settling down to nesting quarters there. Listening once more to the garden warbler at close quarters, I am sure it is not the blackcap's equal as a singer. The blackcap, singing in earnest, does not confuse his notes, never scamps his song, never rushes through it as a garden warbler does. He picks out the notes with finer taste, and throws them into the air with more judgment. It is here alone the blackcap easily excels the garden warbler.

I think that if the garden warbler were more deliberate, there would be nought to choose between the songs. Both have the true wood-wild melody. The garden warbler at his best has several notes which equal the blackcap's, only their effect is hurt by haste. In these best notes the timbre sounds to me just like that of the blackcap : they are strong and pure, and lovely in their freshness.

These singing garden warblers are good to watch, too. They have a way, which is common to blackcaps and whitethroats, of suddenly diving almost straight down out of the sapling oak or ash, in which they have been singing, into the brushwood and undergrowth. The action is distinctive with warblers.

The form of the garden warbler is very refined. There is no podginess about it. The garden warbler is a slip of a bird, all grace and litheness. I know that some may make light of these as mere refinements of fancy, and will tell me that a hedge sparrow is built on lines as fine as a blackcap or garden warbler, and is as much " a slip of a bird " and as full of grace and litheness ; but I cannot think it. There may be no proving that these summer warblers are more faery-fine than hedge sparrow or yellowhammer ; but the eye *will* be master in a measuring like this.

A LIGHTNING SPIN

The black swishing swifts are back again over our Southern villages and waters by the seventh of May. Almost a week before this, in a high sun-

steeped garden, I have watched a feat as wondrous as theirs, though it has not the glorious beauty. This feat was by the smaller bombilius, which spins in the air on hot days in spring as volucella spins at midsummer. I wrote some years ago of volucella spinning in the coppices in June, on a very lovely day when the high-brown fritillaries were out in their thousands. Volucella, whilst she spins, drops here and there among the herbage of the copse a white egg—I have seen it falling through the air! I can hardly think it is for egg-laying that bombilius spins over the gravel path or the sandy road; but it must be an important feat with this singular and squat little thing; for bombilius charges at any insect that intrudes on its sphere, and after a short rest on the road is up and a-spin again in the sun.

Bombilius-the-less is shy. But by slow and careful movements I can come near enough to see the feat very well. Here is the most striking feature of bombilius's spin: its wings in action do not present a misty semicircle, as in many whirring insects, nor do they present the form of a triangle as do those of volucella spinning stationary in space, with the acute angle oddly appearing to spring from the body. The wings of bombilius spinning over the road appear simply at rest. Their outline is clear, as if bombilius were pinned to the cork-lined box of a collector. When bombilius settles on the road, and its wings are spread out really motionless, they look as they looked whilst the little creature was hanging in space whirring

them at tremendous speed. I have not seen this effect in any other insect hovering thus. With other insects the wing looks either distorted—as volucella's—or misty, as the humming-bird hawk-moth's.

Does bombilius move its wings at such an intense speed whilst anchored in space that the speed is obliterated to the eye, or is it something in the texture or shading of the wing that makes this curious effect? I can hardly imagine that bombilius whirrs at whiter heat of motion than volucella. The larger bombilius seems much slower and less alert, and its wings, as it whirrs, appear misty.

THE PHEASANT'S NEST

The pheasant is the most careless of mothers—and yet she can be so careful. Whilst I was trout fishing in the Rother, the keeper took me to see a pheasant's nest on the side of a copse bank sloping down close to the stream—a little copse in a pastoral land full of babbling whitethroats and prankt with spring flowers and bursting buds. But at first he could not find the nest, and had to thrust lightly aside the dead grass and undergrowth around it, for she had covered over her eggs with dead leaves. Now here is this odd fact—some pheasants cover their eggs when they are off the nest, whilst others leave the eggs bare. One hen pheasant strikes us as exactly like another, and whilst shooting we often notice that the hens are very stupid, beating against wire fencing where the cock birds will run

round or fly clear of it. Yet this habit of covering eggs, as the dabchick covers them, hardly points to stupidity. Some birds may cover the eggs to keep the warmth in them, but the pheasant will cover them before she begins to sit. She covers them, I think, to guard against enemies. But what interests me most is that the habit is not invariable or general. Many pheasants do not try to hide their eggs; and this, I must admit, tells against my view that the reasoning or mind power of a wild creature is common to each member of its species—that what one honey-bee does all honey-bees do, the wisdom being collective not individual. The hen pheasant and other exceptions of the kind do not shake me in this view, but they are striking and worth thought. Suppose a hen pheasant regularly covers her eggs on leaving the nest, will her chicks, when they lay eggs, do likewise? If the habit is not inherited, one cannot understand how it arose and lived.

MOORHENS

It is hard to make a census of even the most modest little pond among the hills and woods, if that pond be weedy and fairly deep in spots, and is fed by the smallest spring. It may hold its unknown rarely seen population of water flies, water beetles, and fishes. It has, too, its own little flora as well as fauna, water plants that are nowhere else within a radius of miles; it is as if they had been spontaneously generated there as our forefathers may

have held. One of these little ponds is in a hazel and oak spinney by the Sussex roadway, whilst the other has just a feathering of wood on one side, where the butterfly orchid is ready to blossom. A few sallows and sedges grow at the edges of the ponds, and each pond has its pair of moorhens. I found the two nests almost at once. One is in a thorn, almost flush with the water, and so full of eggs that they lay, when I last saw them, one on the top of another. If the pond rose two inches the nest must fill up with water and the whole be spoiled. But the nest in the spinney is very different. It is in the middle of willow stems that spring straight out of the water, and is built up eighteen inches or two feet above the water. Perhaps this moorhen was wiser about water than the other bird, or perhaps the spinney pond is apt to rise higher in wet weather and sudden storms. I cannot say which is likelier, for I have not watched the building habits of the moorhen closely enough; but I know that the high-set rush nest in the spinney pond is snug and safe.

The nestlings hatched before mid-May and bubbled out of the nest, tumbling into the water, where at once they paddled and pecked, quite at their ease —imp-black, hairy little things, with a red, red bill. They swam about among the sedges at the edge of the pond, and by and by went back and climbed into the neat rush nest.

What precocity is in a nestling moorhen! The only other young birds I have seen return thus to their nest have been wrens and cirl buntings; they

were full fledged or almost so, whereas these implets were but lately free of the shells. How the precocity of the moorhen nestlings has come about hardly allows of doubt. It was worked out by the life-wasting but extremely sure method—evolution. The nestlings of these grebes, rails and ducks must be precocious or perish. A moorhen must take to the water swifter than a swift to the air.

So, in the ages that made the moorhen the bird it is to-day, the chicks less forward than their fellows must have tended to die out, whilst the more precocious chicks tended to survive. And the standard of precocity in these nestlings needs must be very high. Imagine a moorhen nestling at its birth, being blind, naked, and helpless as a blackbird or a song thrush nestling, and you can scarcely imagine it as having a chance to survive. It is born in a nest that often is waterlogged, and in a spot often infested by foes. One can hardly fail to see evolution working on the moorhen nestling by its great instrument, natural selection.

I never watch the rails, crakes, and moorhens, without marvelling that such utter sluggards on the wing should be among the regular migrants, able, at times, to make great journeys over sea and land. Take the moorhen. In the winter it is sprightly enough, and when pressed hard by dogs it can fly from one marshy spot or spinney to another not far off. But even so it gives one the idea of unease in the air, and is a slow flier, settling ere it has gone the length of a fair-sized field. Its

element is water not air, and its habit, above all, is to hide in tangled water-ways.

It harmonises with its environment, not through form or colour matching, but through perfect stillness. I have flushed two or three moorhens in a field, and they have half-flown, half run to a small deep pond, which on one side has a few overhanging bushes and some coarse herbage and water weeds. I have gone to the pond, seen some disturbance on the water, and, on this ceasing, there has been absolute quiet. Peer where I will, I cannot see a faint sign of the birds. I may wait ten minutes, a quarter of an hour, but nothing stirs. Yet the moorhens are there, and a dog will move them at once if it enters the water.

It is the same with the rails and the crakes. They live a life of skulking and creeping amid herbage, and, if you flush them, after a short laboured flight they are down again in the tangle. A Norfolk sportsman told me that only once in many years had he seen one of the smallest of the crakes—he could not say whether it was the little crake, which is only a casual winter visitor to England, or the rare Baillon's crake, which has nested in the Eastern counties. It sank down soon after it was flushed into quite a small patch of thick marsh herbage amid a bare field. He went up with his spaniels, but though they scoured the whole place nothing could be seen of the bird, and the search was at length given up. It would not rise, and it could not be found.

Yet these crakes and rails migrate. The landrail, slowest of fliers as we know it, does the great African tour each year. The landrail cannot lag in the air during its long journeys as it lags when we flush it in an English field; if it did, it could never reach its goal. It must fly far quicker, it must be able to keep a-wing hours at a stretch. But seeing that its life, save for these few grand occasions, is all hide and skulk amid dense undergrowth, how is it the landrail's power of strong flight has not been impaired? How has the power ever been developed? Gätke held that for these migrations birds are vested with an exceptional, glorious power so that they can move much faster and keep a-wing far longer than they can in their every-day lives. It is a beautiful idea this which imagines for the bird a mystical, unknown afflatus to sustain and drive it through space. Superbird indeed! But we ought to be careful not to get entangled between prose and poetry in this, and here it seems as if the two might be confused.

THE BUGLE FIELD

I went to an open sun-steeped spot at the edge of the tree pipit's coppice where is an acre of bugle in full bloom. Bits of ground ten yards, twenty yards square are sheeted with its purple blue in three tints, the strongest being a blue that in depth approaches lapis lazuli.

This whole field brimming with bugle, which rarely allows any other blossom, however trifling,

to share the soil with it, hummed at eleven in the morning with honey-bees and bumble-bees; and, looking closer, I found that it had drawn to itself many other insect visitors. The first I saw was the loveliest. It was the beehawk moth, with red-banded body and transparent wings like a dragon-fly's.

It hangs in the air round the spikes of bugle after the style of the humming-bird hawk moth—which I saw near the little Arab village of Marsa, in North Africa, early in April. Visiting blossom after blossom, it plunges into each its long proboscis, or nectar gatherer. It is quite easy to approach, and I believe that one might stroke it on its silky body whilst it is poised and busy in its nectar search.

But the bugle field in the morning sun drew other visitors than the bees and the beehawk moth fresh from its chrysalid. I soon found the bright little brown butterfly, the Duke of Burgundy fritillary, on the wing fresh from the chrysalid that morning. We cannot mistake a fritillary fresh from the chrysalid for one that has been out a few days: the bloom that lies over the colouring and curious pattern of fritillary wings is brushed off in a matter of hours; it really is ephemeral.

The two early skipper butterflies were flitting all over the bugle field, though not so often sipping of its sweets; these are the dingy skipper and the grizzled skipper. The grizzled skipper is among the prettiest of English butterflies; it is a little black, brown, and grey or white speckled insect that flits

rather quickly and very insignificantly from perching spot to perching spot among the bugle flowers; and like all the other English butterflies I have noticed, gets its back to the sun and falls into the trance of warmth.

It would be idle to point out the grizzled skipper to any one who had not an eye and fancy for the very small and sober-coloured things in Nature—he will never notice it again. But the sun brings out a large hatch of butterflies which, seen in repose for a few seconds, must appeal to any one who cares for what is very lovely in Nature. It brings out the orange-tip butterflies in large numbers in the fields as well as the hazel and oak coppices, and it brings out the two pearl-bordered fritillaries.

These fritillaries appeared so suddenly, I think they must have hatched by thousands in a single hour one afternoon. At about two or three o'clock I found myself in the brown of them. The tint of the wings is, in neither of these woodland butterflies, so deep, so red-brown, as in the Duke of Burgundy fritillary; but there is much more of it, and on the wings of some of the larger pearl-bordered fritillaries it is bright as brown can be. It may have been a mistake to name them the pearl-bordered and the small pearl-bordered fritillaries, because between the smaller specimens of the first and the ordinary ones of the second there is virtually no difference in size; and at most the difference in size between the two species is barely measurable by the eye. We know them apart only through long

practice; and if we have missed them for several seasons we easily confuse them at first on seeing them on the wing again.

Yet the difference of tens of thousands of years separates utterly the two pearl-bordered fritillaries. I do not know that even an occasional cross or hybrid between them is found by the butterfly collector: I never found one in days when I collected, nor heard of one. But if there is such a cross, it comes to nothing. The two species keep distinct, and I notice that they speedily recognise each other on the wing, after a few giddy rounds of that whirl of inquiry or rivalry which butterflies meeting and passing each other in the air often go through.

The pearl-bordered fritillaries appeared first, not in the bugle field, but among the hazel and oak underwood shoots. Here they are a-wing from ten in the morning till almost sundown. They are, unlike some kinds of English butterflies, roamers far and wide through the coppices, and are always in the true fritillary haste—haste, it seems, to do nothing. The habit of haste—aimless haste it appears to be, but we can be sure is not—is as marked in these two lovely insects as in the larger high-brown fritillary which hatches out in June.

I have seen the pearl-bordered fritillaries in past seasons drawing their sweetmeats from the bugle blossoms now and again; but this time I have not seen one on a flower; and indeed I think both are of choice far less dainty feeders: they settled often on a bit of moist soil or at the edge of a rut in the

wood path and seemed to be feasting with rapture on the clay there. Clay is as constant a course on the fritillary menu as honey.

In these coppices where the pearl-bordered fritillaries dash to and fro in their brilliant, erratic way, the smaller coppice flowers are at their height of beauty. The germander speedwell is quite wonderful now. The word "carpeted" applied to wild flowers of meadow or wood is worn by frequent use, but it really expresses the appearance of these lesser spring flowers, and of bluebell and primrose, better than any other word. It is a carpet in this last stage of May, with a pattern of delicacy and minute refinements that we shall find at no other time of year.

In marshy spots and on high thymy downs May is not perhaps the supreme time for wild flowers; June or early July may surpass it there in plenty and variety—certainly the flower carpet on the chalk downs is not woven to perfection till June is well in. But in woods and coppices May is easily first in flowers; later the thick leafage is too much for the blossom. The carpet of the coppices is patterned by germander speedwell and creeping cinquefoil.

These flowers take plots of ground to themselves, joining but rarely mixing their colours. Here and there right in the midst of a yard or two of speedwell, pressed tight together, a single blossom of the crimson vetchling will appear, or among the cinquefoil a white flower or two of the wood-strawberry, but by rule, each kind of flower that flourishes in

companies has its bit of carpet wholly to itself. The effect is delightful, a form of natural gardening quite beyond artifice. But, indeed, the coppice carpet in these delicious speedwell days is above all gardens.

II

BARN SWALLOWS

BARN SWALLOW is a happy name, but I am not sure the bird is not still more at home in a deserted mill by a little English trout brook. There are many of these old corn-mills falling to ruin in England; and once the great wheel is locked and the dusty miller and his men gone for ever, how soon the building begins to fall to pieces! The woodwork rots, the windows are broken—a village boy can hardly see a pane of glass in a deserted building without casting a stone through it—and the brickwork, which has held out for centuries, perhaps, becomes shaky and dangerous.

An old mill is like many an old man who has been at work hard nearly all his days—when he ceases from work he breaks up; it is the regular daily routine of work that keeps an old mill alive, despite the rush of waters and the wear and tear, as it is the daily routine that keeps alive an old man.

A corn mill by an English brook always draws wild things; but it is when the wheel ceases to lash the water and is locked that the birds make themselves quite at home. "The dark round of the dripping wheel" has ended in a mill where I often watch for the trout to rise, and the floor is dusty no

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Photo. C. Reid

SWALLOWS IN NEST

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more with the meal; though going there one day I noticed something on the mill head's sleepy pool that I took for meal at first—the water was spread with a sheet of white, the pollen of tall poplars that surround the place, for the poplar wastes its pollen profuse as any yew.

The swallows that nest each year in the mill have glued their nests to the locked wheel, and one of the two nests has young. The plaster the swallow makes her nest of and glues to the beams or other woodwork will last a long time. Around the wheel are bits of nests or nests entire which have been there for years. Yet I think a fresh nest is built each year by the barn swallow.

A WHITETHROAT'S STRATAGEM.

When I disturbed the sitting whitethroat by the stream, she fluttered softly off her eggs, held in a deep, slight cup of dried grasses, with a few horse-hairs for lining, and uttered no sound. Instead of flying away, she dropped at once among the grasses and dead leaves and brambles, and crept off more like a small mammal than a bird. She threaded her way through the bush that held her treasures and the neighbouring thicket, in and out among the dense undergrowth, till she was lost to view.

Then she must have found her wings again and flown up into the bushes, for a few minutes later, I saw her working her way back from twig to twig towards the nest. She had found her voice, too. She was uttering the little note of fret and fuss, a

kind of nagging "chat, chat," by which whitethroat and garden warbler protest against intrusion when they have young or eggs almost hatching; but—so like a small bird!—all the time she was protesting and edging near and nearer her nest she was pecking grubs off the tender green leaves; the grudged moments the whitethroat spends perforce off treasures that are growing more prized every hour must not be wasted. . . . And now she reaches, just above the nest, the oak branch, from which she always "takes off" on each return to the eggs: one last caterpillar there, and she drops quickly into the bush and is brooding on the little olive and brown speckled shells once more.

Her head tilted up and backward against the rim of the nest, her body pressed down close and out of sight, she sits wide awake all day, her bright eye roving, watchful and keen; no dozing on her eggs with head tucked out of sight under her wing, as the mute swan sits by the hour on a late clutch of eggs in the nest on the islet. The movements of no living creature likely to prove a foe are overlooked by the small bird brooding on her treasures.

PARTING OF THE WHITETHROATS

The lesser whitethroat, in form and tint of grey and white, is just the common whitethroat drawn a shade more faery. In food, haunt, nesting habit, travelling habit, lesser whitethroat is mainly common whitethroat. He has struck out no line of his own in these ways. But, as to song, I find him far

apart from common whitethroat. True, he has the whitethroat jabber to begin his song. It may be in a little lower key, but it is the same characteristic jabber which the other flings out on the wing in those gay frisks over the roadside hedge.

Now mark the parting for ever of whitethroat ways. The common whitethroat begins and ends with jabber; the lesser whitethroat ends with a loud shake of bubbling note that is utterly unlike the note of any other English warbler. How came the lesser whitethroat by this songshake? Nothing in its way of life to-day, nothing in the hedgerow and coppice company into which it is thrown, gives the clue. Its fellow lodgers are the same as the common whitethroat's. There are several hedgerow birds with a song-shake that may remind us of the lesser whitethroat's—the cirl bunting, or the greenfinch even. But they are neighbours of the common whitethroat, too. Moreover, I see not the smallest reason to suppose that whitethroat learned from cirl any more than cirl from whitethroat.

Looking at the two whitethroats, and thinking of them, I doubt not they had a common ancestor; but my mind is blank as to whether the smaller whitethroat pattern struck off from the larger, or the larger from the smaller. Indeed, may it not be that, though they came through the same forbear, neither is child of the other? However this be, here they are to-day, so near in most things—replicas, to look at, save for a trifling difference in size, identical in most of their habits,

yet utterly apart in one phase of song. It is the same with the large skipper butterfly and the pearl skipper butterfly. Replicas here again—in all save pearls.

Pearls of a skipper, song-shake of a whitethroat, these seem the toys of creation—it's child play.

In the great, grim work of life-making, of dividing and walling off into separate species, what can be the meaning of such differences that look so unessential? And how is the world richer except to a few curious eyes and ears—and those only the eyes of a detached outsider—by a few little four-sided figures on the wing of a fly or a bubble in the note of a bird? If we in art make such little differences in pattern, we agree they are trifles, and soon abandon them as such. Yet Nature never trifles, and these patterns that vary by a pearl or a sound bubble are not abandoned.

CHERVIL COUSINS

For variation in plant pattern there is an example that charms me in two common umbel flowers, the wild chervil, or cow parsley, and the rough chervil. The first is running fast to seed ere June is far advanced—is quite beaked in English bird lanes, in hedgerows and wood hedges facing south and west; the second is then coming everywhere into blossom. The two chervils are intimately related—cousin chervils. No one can notice them, I think, and doubt there was some chervil ancestor common to both. They could not, the eye and thought assure

me, have been moulded original and distinct creations. No—they evolved.

Now, with so much alike in these plant patterns, mark the odd little distinctions. First, rough chervil (like hemlock) must have its stem blotched with purple, whereas the stem of cow parsley must never be stained. They come to nothing, these purple marks, so far as we can see, they serve no end we can understand; but Nature would as soon omit to stain the rough chervil as to wing the swift. That is the rough chervil's chief mark of distinction; but it has, too, a darker leaf, a more drooping way, so that as the flower stems unbend upward they look as though they fainted in summer heat or had been nipped by frost before the dawn. Chervils —in the wild—do not intermarry; perhaps the table of affinities in plant life rules out for ever such a union. Yet how close their companionship in the hedge often is! They nestle side by side in the long grass, though they keep their patches distinct. And the one pattern is not fully developed till the other is ended for the year.

"THEY ALSO SERVE—"

With the red linnets marriage is a real, a very close tie. Through the nesting season the partners are inseparable, and their season is not short like the missel thrush's or nightingale's. It covers the best part of five months. Two, if not three, families are reared, and even in July linnets are to be seen in plenty, collecting grasses and hairs and wool for

their new nests on gorse commons or in wayside hedges. The hen linnet is always waited on closely by her mate. Linnets are so abundant we are apt to overlook their good points. But sometimes their beauty and spright flash on us, a discovery of delight, when the cock bird perches on a twig on the top of the wayside hedge very near us and sings his best. His breast is dabbled with the reddest rose—few English birds have anything so bright —his carriage is upright, and his spirit all that can be gay and lively. Whether the cock linnet helps to find a nesting site, I cannot say, but he is no builder. I have never seen him pick up a bit of grass or other building material; he has not the slightest nest-making instinct or skill. Yet I know of no English bird which waits so closely, more gallantly, on his mate whilst she is building. He goes to and fro with her each journey between the nest and the ground where materials are gathered. This is a fixed habit with cock linnets. When we see a hen linnet gathering material for a nest, we can feel sure her mate is close at hand, and that, when her bill is full, and she rises with her little conversational twittering, he will swiftly respond, and rise and fly off with her.

What purpose is served by this gallantry of the male linnet towards his mate when she is busy making her nest is not clear. He will drive away other birds that venture near her whilst she is collecting, but is it likely any intruder would wish to rob her of a dried grass or a horsehair? If we

say " perhaps he attends to cheer her during her work," we are in danger of inventing for them motive that is perhaps peculiar to ourselves. So far as we can see—not very far in such an affair—the hen would build her nest all as well and quickly if her mate did not attend her. Yet this attention is so constant, so invariable, that I hesitate to think it can be of no use. " They also serve who only stand and wait."

ON THE BROWN MOOR

In the heart of the brown moor, and the great, oozy common that lies about it, is still the England of a thousand years ago. Round barrows, piled by the people of a bronze and stone age, dotted over the dry parts of this true wilderness, are untouched. No plough or harrow ever passed over them, even when wheat was at eighty shillings the quarter; and nobody has come with pick and shovel to dig into their strange treasuries of burnt earth and ash. At the edge of the western part of the moor some building and road-making work is going forward, for the ground is high-lying and dry there, heather and gorse growing on sand, and a greedy town stretches out in that direction. Avenue this and road that are named already, and a long, narrow belt of peat and pine is doomed.

It is curious to notice how the corn bunting affects a piece of ruined ground like this, which seems to prefer spots where Nature is unspoilt. I heard its chirrup directly I got out of the suburbs,

and found it sitting sluggishly on the dusty heather tufts and the clods among building sites and roughly planned gardens. In such places, within a few miles of the sea, the corn bunting is often as much at home as the house sparrow. It is a bird not of the town and not of the tidied-up and finished-off suburb, but of that unspeakable fringe between suburb and country; a woful place of hoardings and lime and mortar heaps, which surely smells of yellow bricks.

I left the corn buntings at the last rubbish garden. A mile's walk through heather and gorse took me down into the swampy parts of the moor and common, clear of all sight and sound of human work. The whole of the high, firm part of the moor will some day be brick and mortar if the town by the sea continues to stretch inland; and the barrows of the bronze age be enclosed in back gardens! But it is hard to believe that the wet hollows and levels on the east will be spoilt even a century hence. They look inviolate. A moor stream runs north across this common, away from the sea, and is fed by iron-tinted springs that ooze up in the hollows. Besides this regular water, there is casual water in hundreds of places after a rainfall, water which makes swamps and little bogs throughout the peaty ground, and will lie for weeks in shallow pools as though the soil were puddled clay.

To drain such a stretch of ground would be a huge task, and a task not worth attempting whilst dry, breezy heights near by promise the reclaimer a far better return. At present the place is only tamed

a little by fire. Tracts of it, where the gorse and heather are driving out the grass, are burnt black from time to time by the freeholders ; and in a season or two after each burning a little pasturage begins to spring. These fires burn with a consuming fierceness, acres of sheeted, crackling flame licking up everything save a few of the largest and toughest gorse stems, which they leave charred and naked ; and singeing the willows and scrub at the edge of the swamps. On some of the round barrows are old pines, known as " the Gibbets," and the wonder is how these trees, despite their high-borne platforms of foliage, have escaped the black blasting of the heath.

I found this solemn, aloof tract fuller of wild life even than the flats and " hams " between the estuary and the sea headland six or seven miles away. Cuckoos were shouting everywhere, flying in twos and threes quite close to me, and many of the meadow pipits on the dry heights of ling will soon be sitting on more eggs than their own. But the moor has far nobler game than the cuckoo. Just as I had clambered over the rough county boundary that cuts the moor in two, by the gibbet pines on the barrow, I flushed two beautiful ash-grey harriers, which stretched long, finely-pointed grey wings and skimmed off close to the ground with their perfect buoyancy. These birds looked to me large and bright enough to be hen harriers, but probably they were two male Montagu harriers, summer visitors to the heath and swamps.

It is worth scrambling about many hours in a place like this, and losing one's bearings completely, as I did, to have a near view of such game. Two out of our three harriers are hardly more English birds to-day than the kite, and for this third—Montagu's—we may search summer after summer in vain. The harriers, if they find mates and stay to nest on the moor, will find abundant prey in pipits and small ground game on swamp and dry spot alike.

Peewits are twirling and tumbling over the heath all day and half the night. I flushed mallard and snipe on the greener and moister parts of this glorious wild common; whilst the noisy redshanks were on the wing in one corner. Some people think a redshank's eccentric wing play is a device to draw the intruder from its nest. It may be, but each flight sometimes finishes with a wild, erratic figure in the distance, hundreds of yards from the intruder; and then the redshank seems to forget all save its spring ecstasy. It will end one of these flights with a high speed, glancing or rolling from side to side, and taking a course irregular as that of a streak of fork lightning.

This redshank action is just like the action of the ringed plover across the stony warren under the headland—the very passion of wings in it! It is common to several of these birds of the marsh and mud-flat; and so, too, is the mournful protest around and around the intruder, and the slower, jerky flights overhead. Whilst the redshank is

jerking round, and uttering its "tuk, tuk" note of alarm or vexation, I notice this odd thing—its head appears to be set absolutely on its shoulders; it is neckless. It reminds one of a bird on the ground crouching and ready for a spring upward.

The redshanks are nesting in the wetter parts of the common, where half the ground is under water now; and here, among the gorse and sallow scrub and tufts of half-submerged heath and ling, the air is redolent of the orange and red flowers of sweet gale. I scarcely know of a wild plant sight more beautiful than sweet gale in patches, burning with colour, in the snipe-haunted hollows. Side by side with it is the midget of the willow tribe, hardly stouter sometimes than euphrasia, little eyebright of our dry chalk downs. This willow, *salix repens*, that reaches not higher than the ankles, is covered with neatest globes of yellow pollen.

In scent dwarf willow is the honey of the swamp, and sweet gale the incense.

BEECHES OF MARK ASH

Trees to some people who live among them, take on personality. Not long ago, there died a New Forest owner who *felt* for trees. It was said, and is still told of this man, that he suffered with them in a hard storm. "Poor things, how they suffer!" is a saying recorded of him. The same sympathy with trees might be attributed more or less to other men. It is natural that trees of a great size and adumbrage should appeal strongly to some natures.

The untold variety of their forms and manner of growth is always an interest, and often a surprise. And then, where the oaks and beeches are free of underwoods, their trunks, some dark-coloured, some light grey—according to whether they grow moss or silvery lichen, or whether they are presented to view on the rainy side or the dry—have such a look of personality about them.

Take Mark Ash, the noblest beech wood in the New Forest, if not the noblest in the world; tree personality is here any season of the year. Mysticism is often viewed askance. It is known to be a " cult " or weak fashion worn by those who wish to be out of the common run—hateful and bad veneer. But there is a natural and irresistible mysticism, a mysticism of woods, marshes, and waters. The beeches of Mark Ash are full of it.

Groups of these trees are groups of giants. Each tree has individuality. To reach this state a beech or oak must measure its life by centuries, and scores of beeches in this part of the forest must be hundreds of years old. There are traditional oaks, as those of Boldrewood, said to be 600 or 800 years old—the 800 a favourite reckoning, perhaps, because it carries us back to about the time of the great Norman hunting kings, the stark figures of New Forest story.

These traditions, like the traditions of the great yew trees of our chalk downs, belong to the realm of fiction; but it must be fact that many of the beeches of Mark Ash are in their third, if not fourth, century to-day. Their girth simply proves it.

Each limb of many a tree here is a tree. It is the same with some of the oaks. Six or seven full-sized oaks fork out of the wonderful Knightwood Oak. In wet, stormy days in July Mark Ash is seen in its prime. Some of the great boles are grey with the lichen that we more often find on the ash tree, and the " green gloom " of the place is incomparable.

Fifty years ago Mark Ash and Sloden were the regular summer homes of the honey buzzard ; and the common buzzard was there through most of the year. A buzzard or two may soar there still, but the honey buzzard has been abolished by egg collectors. The rare egg collector is the enemy of all who care for the forest. He is a child who never grows up, a child of constant mischief. I say deliberately that any man who buys for his collection an English specimen of a buzzard's or a honey buzzard's egg acts against the public interest. It is a graceless traffic.

Mr. Gerald Lascelles has for years worked hard to keep a few rare and beautiful things alive in the New Forest. He has done, I believe, as much as any man can do. But the slyness and greed of the collector must often be too much for him and his staff. To restore the buzzards, or to conserve the few rare things still left to the forest, we must strike at the receiver. Without a receiver the burglar would soon find his trade profitless.

THE FLIGHT OF FLIGHTS

Between natural flight and the aeroplane is fixed a gulf which no imagination can truly bridge. It is only in mythology a man has ever thought about flying in the earliest sense of the word: Icarus did, when he boasted, "In ætherias auras ego previus ibo"; but to-day we do not think of flying, we only aspire to machine our way through the air as we machine it through the water in a ship or over the land in a train. So, no doubt, there is a great deal about the methods and varying styles of birds and insects and bats, and about their aerial equipment, that is outside the sphere of the practical motorist and machinist of the air. Thus, I suppose, the aeroplanist need no more study a bird's feather or a bird's wing-driving muscles than study the scales on a butterfly's wing. Yet there are features of natural flight which might repay very close study.

As for the more obvious features of natural flight, we can think and enjoy them apart from thought of our own traffic with the air; and of these how the swift's flight commends itself to us spring after spring! There is something about the flight of a swift that makes one try to think behind evolution. Change a word or two, and a saying in the Koran fits well these feats of wing—"Thou did'st not fly when thou flewest, God flew for thee." As it soars and sweeps through the air with rigid wing, now and then gathering fresh impetus with a few quick, scissor strokes, the swift does seem to express

the absolute ideal of motion in a live thing :* tremendous power over its element, perfect ease and grace, all three combine in this bird. The power and the grace of the thing are clear. The ease of it is not less sure, if one thinks of the matter at all, for the male swift is abroad quite early in the morning and does not rush to roost till between eight and nine on a summer evening, and during the daytime rarely leaves the air for a rest, as swallows and martins do.

The swift was not made to sit or rest on trees as most other birds were built. It has but a hook to hitch on to rock or building, and this is chiefly used in the work of scraping together a nest, and later in steadying itself when feeding the young. A swift does want rest during the daytime, like every other flying thing ; it tires and must perch awhile —and its perch is the air ! Besides these features of a swift's flight that always strike one when the bird reappears in England in May—power, ease and grace—there is a fourth that many must notice : the feature of simplicity. The action of its wings and the figure it presents in the air are most simple. Yet this fourth feature is only superficial. The feat of the swift is really one of the most complex acts. This mastery over the air, or kinship with the air, could only have been won after an immense age of creative effort. There was the bending and cutting and tapering of the wing to the perfect form for powerful flight in which we see it to-day. It is im-

* A swift *is* flight. It is a synonym for flight. See "*The Airy Way*," page 1.

possible to doubt that this final shape must be a great improvement on earlier shapes in the development of this limb. If anything in the world evolved through natural selection or other means, a swift's wing evolved.

Then there was the moulding of the machinery, the muscles that drive the wing—a great task for evolution that must have been. The muscles of natural flight are not many ; indeed, one great muscle may virtually do the work ; but that muscle was worked up to its perfection just as the feather was worked up—by unthinkable time, change, detail.

NEARING THE ZENITH

May in its third week is nearly everywhere at its best in coppices and lanes, and down by the brooks and up on the downs. This perfection of May is not quite the zenith of the year ; but it is very near that fine point of time. The zenith of the English year is before actual midsummer. It has always seemed to me that, in the South of England, the zenith includes a little of the end of May and a little of the beginning of June, say about ten days or a fortnight in all.

The zenith is the short span when the freshness and the fulness of spring and summer are at one. Now, the prime of May comes just before that. One of its great features is the leafing of the oaks. When the leaf of these trees is fully out, the wood of oak, beech, and birch with its underwood of hazel,

ash, and sallow, sets a wonderful sheet of green against the wonderful sheet of sky blue and white cumulus cloud.

But May has entered at least on its prime before the oaks are true green. In whatever light we look at the oaks about the middle of the month, they are more yellow than green. I have written of the New Forest oaks about Sway and Brockenhurst appearing spurge-yellow, in some lights even primrose-yellow, a little way off; and now I am confirmed in the view that yellow, in sun and shade alike, is their ruling colour. The blossoms of the oaks are distinctly yellow, even when one views them closely and in detail. But so, too, is the leaf before it is quite full-grown.

The oak wood at first sets a sheet of yellow, a little later it sets a sheet of green, against the blue and white skies of the prime of May.

Here and there among the yellow trees is a brown tree, but this colour is rarer; on the face of a good-sized oak wood, as seen from the outside, one will scarcely find half a dozen trees that are more brown than yellow.

BLACKCAPS IN ENGLAND, AFRICA, ITALY

The prime of May is too near the zenith of the year—the whole thing is so soon over! It is clean gone ere I have time to realise it. We suddenly wake to the splendour and immense vigour of the thing one morning when that wild whistle of the blackcap is fairly ringing out of the high trees.

The blackcaps are rarely heard so well as when high among the close-set large trees in a plantation or wood where there is little or no undergrowth. Such spots seem to have some kind of sounding board for blackcap notes. In low, dense thickets the effect of their song is not so telling. It is the hollow grove they need when great depths of green are forming overhead; whereas the thickets suit the powerful nightingale equally well, or that packed song of garden warblers.

The nightingale's song is full of intense pulse or throb which takes effect anywhere; the blackcap's song is far more delicate—we never value the blackcap at its true worth unless we hear it in the best conditions for the carriage of sound.

If you want to see our warblers, blackcaps, garden warblers, whitethroats, grasshopper warblers and nightingales at home in winter, if you want to hear how they can sing in February, you must go to Algeria. Go to the wild hill-side jungles at Hammam Rhira, and there you shall see and hear warblers indeed among the asphodel fields and the mastic and mimosa and acacia bushes; and among reeds twenty feet high you may hear not only all these singing together, but the wild, strange, loud notes of turdoides, the great reed warbler, rarest of English visitors.

Or in spring go to Sicily and the Apennines for the blackcaps and nightingales. Among the orange and lemon trees dropping their ripening fruit in a Sicilian garden, I found blackcaps singing all the

blackcap notes we know at home, but in these songs was a phrase exactly like the thrush's at its prime. Every one who knows well the thrush's song in England knows that phrase which can be written down—now " chee-bur, chee-bur," now " pee-bur, pee-bur," the accent marked on the first syllable, " chee." I was in this Sicilian garden once or twice a day for a week at a stretch. It lay within Palermo, though once fairly amidst its splendid wealth of blossom and fruit I could see nothing of the city. Looking up, it seemed as if at almost every point in this garden the glorious Monte Pellegrino, so huge yet so ethereal, faced me ; its pure grey—of the tint of reindeer moss on a Norway fjeld—being set with finest effect against the azure and white of the sky.

It seemed alive with birds, this city garden. I heard the nightingale there. The charming little serin finches, so swift and shy, chivvied each other in restless parties ; the great titmouse uttered without end, just as it does in England in April, its whetstone note ; whilst the Sardinian warbler was making ready to nest, and scolding the intruder after its fretful fashion.

But the birds that drew me most were those that sang English blackcap songs, adding the typical thrush phrase, " chee-bur, chee-bur," with the expression precisely of the thrush. The garden was such a thicket of leaf and bloom I could not get a good view of the singer, and I wondered whether it was really a blackcap singing or some warbler

I had never heard of. A friend told me, however, that the blackcaps had reached Sicily from Africa, but were not yet at their best in song. He could tell me nothing of the thrushlike phrase, and, though I heard the same phrase a little later in Naples—where blackcaps were common—it was absent from the songs of the bird further north, about Rome, and under the Apennines north of Spezzia. The more northern blackcaps sang the same song as our English blackcaps, whilst the only garden warbler I heard in the South also gave the song we have from garden warblers at home.

Next, the nightingales: I cannot say I noticed any difference between the nightingale's song in Sicily and the nightingale's song as I hear it in England, but it is another thing with some of the nightingales I heard sing in the North of Italy in a garden under the Apennines. Those nightingales were extraordinary. They not only kept it up the whole day, and during the hottest part of the day, but they sang with a "full-throated ease" which I believe I have never heard from the bird before. In this garden—which was all as beautiful as the Sicilian gardens, if it had not quite their wondrous setting—the nightingales were very bold and tame. They sang in full view among the oleander and eucalyptus.

The Italian garden is the home of a warbler utterly unknown to England—the Sardinian. One sees and hears it everywhere in Sicily, and I found it common on the mainland. It lives in Sicily through-

out the year, and in other parts of Italy. The Sardinian warbler was just beginning to build when I came away, but the only nest I found was a last year's nest slung in a garden shrub six feet or so from the ground, reminding me of a blackcap's in material and in the weaving, but deeper than a blackcap's. The Sardinian warbler is not unlike our whitethroat *plus* a jet black cap, and its hurried, jumbled little song is distinctly whitethroat-like. I have read in a book on European birds that the Sardinian warbler, like our whitethroat, tosses itself singing into the air; but though I heard a good many Sardinian warblers, I did not notice this; the habit, at any rate, cannot be so usual with the Sardinian warbler as with the whitethroat.

Though a garden bird—really a "garden warbler," as ours is not very happily named—the Sardinian warbler is not easy to watch or even to see. Because it is shy, or because it is so extremely restless, one can as a rule catch only a glimpse of it among the bloom and thick leaves, but its scolding note is constant, and the glimpses we get are worth having, for the grey dress and the pure white throat and black cap make a charming combination. In the garden under the Apennines I heard a trio, the performers being a nightingale, a blackcap, and a Sardinian warbler, all three close together in the same group of trees and bushes.

The nightingale utterly outsang the others, though there were a few blackcap notes more liquid-lovely, I thought, than those of any bird;

and the Sardinian warbler's quick jumble, by comparison, seemed scarcely a song. Still the union or rivalry of the three was curious and interesting. They were singing against each other, and the strange concert lasted for several minutes, first the Sardinian warbler, then the blackcap dropping out—there is no singing for long against an Apennine nightingale!

Blackcaps and serin finches are everywhere in Italy, everywhere in Sicily. You need not indeed go to any of the private gardens in Palermo in spring to hear blackcaps and serin finches. You can always hear them in the streets wherever there are a few trees showered with blossom. Go into the precincts of San Giovanni degli Eremeti, the most perfect and exquisite building I saw in Sicily and have seen anywhere, and you will find them there most probably singing in the few orange and lemon trees in the wonderful little Norman cloisters. It is impossible to miss the blackcap in Sicily or in any part of Italy I have visited.

THE WOOD WARBLER

At the exact spot in the belt of birch trees and pines where it trilled at the opening of summer last year the wood warbler is trilling now in June. I remember stopping to hear the bird there; and, passing the place about the same day this year, I stopped, wondering whether it had returned to its haunt—when from the tree tops came the sound of the sylph!

There may be no melody in the wood warbler. Musically, it may be worthless. Yet few bird sounds in England are more arresting than this trill. Later by weeks than the call of the chiff-chaff or the pathetic air of the willow warbler, it is scarcely heard till the beech is in full leaf. I associate it with rather high trees in beautiful wayside places and with shady rides or avenues in quiet woodlands; and in little grassy glades among the oaks, where the ground is faint blue with common speedwell (not veronica speedwell), I have watched a wood warbler shiver its wings, an accompaniment to its curious, distinctive song. But I am not sure whether this wing shiver during the trill is an additional touch put in to make the whole more impressive and passionate, or whether only a result of the energy.

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I went another time into the wood warbler's belt of trees by St. Leonard's Forest, and watched the bird, and here the shake seemed simply the result of song exertion. The trill of the wood warbler is very strong for so small a bird. It is more powerful than the bubbling passage in the lesser whitethroat's song, and I saw that this wood warbler shook all through as it sang, and ended each outburst by flinging up its head. The performance is one of the most spirited and intense of any of the kind among English birds; and it is heightened by the repetition now and then of the loud, grave note, "te-te-te-te!"

All these summer warblers—blackcap, garden warbler, lesser whitethroat, chiff-chaff, and willow warbler—slip nimbly about the stems whilst singing and searching for caterpillars at the same time. But the wood warbler seems the nimblest. It hovers more than the others hover, often darting off a twig, and hanging in the air—a very humming bird for an instant or two—to sweep a tiny caterpillar off the underside of the birch leaf.

Then back in a lovely flash to its twig—often a dead twig—to break anew into that strange tremulous trill.

So it sings for hours through a May or June day; and if one chances to see a pair of wood warblers in the spring hunting for food in the same tree, and toying with each other in hot little charges and challenges, it is an exquisite addition to the trill and shake and the swift dart and hover.

* * * * *

In the birch and pine belt by the roadside are three wood warblers, all trilling, perhaps against each other, though whether these represent three nests I do not know. It may be that they have not even yet made their domed nests down in the dead leaves and the copse grasses, for the wood warbler is a late bird.

Now, of these three wood warblers I have no doubt that one at least—if not *one pair*—trilled and nested in this roadside belt last June. Here is our old marvel of bird marvels: this little sylph slipped through the skies thousands of miles at the end of

last summer, wandered in African woods for seven months, then slipped back those thousands of miles —to the very tree in the very belt where I stopped and listened to it a year ago.

What a map in the brain of my wood warbler, might I but unroll it !

Off to Africa, back to England, a journey it may never have done before—there were thousands of wood warblers that did the journey for the first time in their little lives last year. First, a great blind journey away from home ; next the return journey to the same spinney, to the same tree it sped from seven months ago. The wood warbler started for Africa in September, but it did not matter, to a hundred miles or five hundred miles, where it alit there ; whereas it did matter where it finally alit on the return journey ; it must come back to a particular tree among millions of trees in England.

Assume that what we call—to escape from a difficulty—" instinct," blindfold instinct, took it to Africa, surely we may assume that something besides blindfold instinct brought it back to the particular birch tree. When it reached England, I think it may by memory of this landmark and that —river, wood, city, hill, and plain—have worked its way back to this particular tree. Memory did not guide it through the trackless air in the dark (for in the dark it must have flown at least some of its thousands of miles) ; it had some other guide for that part of its travels. But once in England, and nearing the journey's close, memory, I suppose,

did avail. The last laps, the exact destination, may well have been done through the map in the brain of this traveller. Memories of places sleep in our own minds for years. Consciously and unconsciously, we mark and register landmarks small and great. Every man in some degree is cartologist, only the skill of his fingers is far less than the skill of his brain. But if we make and carry in ourselves our own maps, how much more must the bird and the insect do so. They depend on the closeness and accuracy of their observations; whereas we, in difficulties, have a printed map or a signpost to help, or we have others to carry us to our destination. It is as simple as taking out our watch and telling the time.

As civilisation grows more civilised and printed matter and all the conveniences of life grow with it, we must tend to depend less and less on our observations of landmarks, of the lie of the land. A century hence it may be impossible for a man to lose his way in any part of the world. But the wild creature lives by its observations. So its sense of locality (which is not, as some think, a separate sense, but a mingling, a working together of several of the known senses) is strong and true. The wild creature is born with this power, and is ever forced to keep it active and bright. This does not tell us all the secret of bird passage over thousands of miles of sea and land, but we must not leave it out of account; it plays a great part in travel.

STUDIES OF FLIGHT

There is a feature of the hovering of that odd little insect, the lesser bombilius, which is worth watching. Whilst bombilius is whirring over the sandy road or the garden path, it is not stationary for more than a few seconds, together. Bombilius is constantly swinging or swept away six inches or so, though after each swing it is swiftly back again over the same foot or so of ground. I have noticed the same kind of movement in other whirring insects. There is the ghost-moth, which I watched closely in the thick meadow grass at Oakley in Hampshire, in June 1905, 1906, 1907. The ghost-moth swings somewhat in pendulum fashion whilst it whirrs. It is not steady or fixed in the air for long. Second, there are the syrphi, strange impetuous insects that dart or swing off with much decision during their hover. Third, volucella darts or swings, whilst hovering, like syrphus. It is most singular, this action—as if the insect shot itself away a few inches or a foot by some spring or mechanism distinct from the wings.

Watching the lazier movements of bombilius (those of volucella and syrphus are sharper and more decisive), I wondered whether the thing were passive rather than active in this insect—whether it were swept a little from its fixed point for whirring by some little gusts or whiffs of wind blowing at the time. But I doubt now whether the wind has anything to do with this shifting of bombilius and other insect hoverers.

III

THE ROWING FEATHER'S SECRET

A STRAY feather cast by the random ring dove gives us the principle of natural flight. There is no mistaking it, and I never can understand how Marey could dispute Pettigrew's view that bird and insect alike flew themselves by screwing and unscrewing their wings on the air. The screw must be the master key that opens all the chambers of the air to a bird, to a bat, to a bee. Perhaps Marey missed this through knowing too much of the details of flight. He overlooked the simple in the subtle.

The screw, as ruling principle of flight in Nature, is not confined to animals. Even some plants are fitted with it. I chanced to see a single samara, or key, of the sycamore tree spinning down into the road, and could not doubt that even here the principle was at work, as in the grand wing action of herring gull or falcon.

The ring dove feather is the most constant reminder of the principle. One can hardly walk a mile in an English wood without seeing the feather on the path. I picked up one in perfect condition; why such excellent feathers are shed I can hardly say, unless it be that the bird often blunders so

violently out of the trees, striking its wings as it goes. This feather was firm and fresh; it looked as though it had not lost a delicate hooklet or a barbicelle. Its outline, fine edge and curves, were perfect; and, holding this lovely web to the light, and turning it slowly about, I could see the principle of the screw as plain as I can see it in the whole wing of any bird.

Pettigrew had in his work "Animal Locomotion," a picture of a bird's wing twisting on itself in flight. This figure was reproduced in my book, "Life and Sport in Hampshire," as I was touching on natural flight, and I do not think the augur-like form of the wing is exaggerated; but, anyhow, we need hardly go beyond the ringdove's single cast feather for eye proof—which, after all, is often brain proof—of this augur or screw. The feather I mean belongs to one of the set called primaries, or, as I would rather name it, one of the Firsts in the wing; it is one of the oar-feathers—rowing feathers.

The shed wing feather gives us, then, a far clearer hint of that ruling principle by which a bird flies than any bird, great or small, on the wing, can give; for the strokes and motion of the flier are extremely deceptive. As a rule the bird, by a plain-looking up and down flap of its wing, tells us nothing of the real nature of the stroke. Watch a rook, a heron, a gull, or a partridge on the wing with the hope of discovering the secret of its mastery over the air, and you will be disappointed. They disclose nothing as to the real nature of the stroke

—though they never disappoint if you watch simply to enjoy.

But take up the rowing feather—and there you have it. The secret is out!—secret of the most glorious, effective, graceful feat of any living thing. The grand principle is clear—the ring dove has cleared it! But still we are only at the beginning of the secret. We are in the dark as to so many important phases of flight. How does the air itself act? In what forms does it flow or curl? How exactly is it worked up by the wing of the flier? Then as to the feats of sailing on extended wing spirally into the heights—miles high as the condor is said to spire—and as to swiftly changing the plane of flight and the direction of flight, and as to the hovering feats—we know as yet next to nothing of all these. As to this last, we do know that the commanding figure of eight plays a great part, acts as if it were a buoy in the air for the bird or insect hoverer. But why? Why does the eight hold the flier in leash, giving way to single loops and to a mere "waved track" through space when the flier darts forward again? What is the masterful restraining virtue in their eight of flight that all the birds and insects must cut it accurately to float at anchor in the air?

REAL SECOND SIGHT

Writing lately of the "map in the brain of the bird" reminded me of a page in Aris Willmott's long-forgotten book, "Journal of Summer Time in

the Country "—an informal, delightful talk about pictures and books. The mirror in the mind of a man, though largely useless for way-finding purposes—for orienting himself through vast tracts of country—reflects and keeps for years with marvellous faith certain scenes and faces. Willmott tells us how Cowper's friend, Newton, said that in after life the face of the girl he had once been in love with " shone " on the deck as he stood at the wheel steering the ship through a storm.

In Coleridge's mind not only the details in the landscapes of his childhood were perfectly clear in late life—the very colours lived bright as on the canvas of some great artist. He shut his eyes, and the river Otter ran murmuring in the room in which he sat. He saw with the utmost distinctness the plank across the stream, the willows along the bank, even saw the coloured sands beneath the crystal clear pools. Here is the real second sight which men have in common probably with many animals. It is another world, a real world, within ourselves—more beautiful and curious and useful than any sham world conjured in by spirit-rappers and " astral bodies."

A BUTTERFLY'S ARMOURY

The lovely pearl-bordered fritillary butterflies are still out in the coppices of mid-June. The small copper and the small heath—the dapper and the dowdy of their race—are on the wing ; and soon nearly all English butterflies will be hatching out. The old

puzzle—" Why have so many of them those dusky shadings and rings or eyes and tiny spots on the underside of their wings ? " is put before us again. I think I have studied this matter—so far as it is related to several English butterflies—as closely as most observers. The large heath butterfly I have watched most carefully in several years, and also the common blue butterflies, the orange-tip, with others. What I have never been able to find is the foe against which they have been armed with these marks and dusky shades. Professor Weismann has written about the protective marks and colours of butterflies ; and he writes with such entire confidence that one is half-ashamed not to go all the way with him. If he be right, this problem is solved. Not a letter on our butterfly's wing is a mystic letter. There is no chaos for us in these colours and marks—it is cosmos everywhere in the insect world, and I suppose in the bird world too.

Weismann does not overlook the question, " Against what enemies are the butterflies protectively coloured, shaded, and marked on the undersides of their wings ? " He allows and answers the question in a sweeping sentence—" The preliminary postulates of the theory have been disputed, for instance, that diurnal butterflies are attacked and eaten by birds, but observations specially directed towards this point in India, Africa, America and Europe have placed it beyond all doubt. If it were necessary I could myself furnish an account of my own observations on this point."

This list of four continents is formidable, but as to English butterflies, I have watched for years without finding for them a dangerous foe. In seasons when insect food is very scarce, butterflies may be somewhat preyed on by several kinds of birds; but, taking one year with another, English birds trouble little about butterflies. They feed on caterpillars, the eggs perhaps, and the chrysalids of butterflies and moths; but the perfect insect or imago of the butterfly is chased and caught by only a very few birds. Nor is the butterfly at rest or roost on its leaf or grass stem often touched by any bird. I have watched for years, but have never seen one blue butterfly, one copper, one small heath swept off its grasshead or bent by a bird, though all these will be put on the list of insects whose wings on the undersides are protectively coloured or marked. The butterflies that sleep on grassheads, bents, and tall, slender plants are, indeed, very unlikely to be attacked by any English insect-eating bird. It would be hard for a bird to get hold of them in these perches; nor are they in such numbers that it would be worth the bird's while to hunt for them there.

Of the sleeping-places of a good many English butterflies nothing is known. Where does the comma butterfly sleep? Weismann says it mimics a dead leaf that it may cheat its watchful bird foes. On the underside of the comma's strange notched wing is a little mark, which gives the butterfly its name. I have just been looking at it.

The butterfly is punctuated with a perfect comma, one on each underside of the hind wings. The comma is white, the rest of the underside of this wing dark, with an obscure muddled pattern.

The comma, says Weismann, represents a little crack in the dead leaf through which the light is shining. The bird is duped—the butterfly escapes! That comma leaves me cold.

I am sure that English butterflies, protected by colour and mark, or unprotected, are not preyed on much by birds. A sparrow blunders after a white butterfly, or, now and then, a finch does so. It ends there. Butterflies a-wing are not seriously attacked by birds; I am equally sure butterflies sleeping or sunning are not seriously attacked. I have watched English butterflies of various kinds: five of the fritillaries, three of the whites, three or four of the blues, five of the skippers, the orange-tip, the white admiral, four or five of the vanessæ, the meadow-brown, the ringlet, the two heaths, the small copper, the hairstreaks (green and purple), the purple emperor, and others; and I have rarely seen one of them chased in the air or caught on its perch. Where the butterfly does suffer is in its chrysalid and caterpillar stages of life.

I cannot believe that all these curious, complex finely-drawn patterns on the undersides of the butterflies' wings are protection marks. I could as soon believe that all the mystic marks and colours on a chrysalid are protection from birds.

I believe in evolution: I believe in natural selec-

tion, chief agent of evolution. The truth of these great theories is irresistibly borne in on me. But not *everything* means natural selection or sexual selection. Nature does not keep arming a butterfly or a bird against foes which never or rarely threaten it.

So much for butterflies at home. Turning to foreign butterflies, there does seem a very strong array of facts pointing to protection by colour, mark and form. Two families—kallima and anœa—appear to mimic dead leaves exactly. Kallima we often see in collections but anœa is perhaps a still better mimic. With its wings folded, it shows stalk, ribs, apex. Here is something like a sham! Anœa divina has a light circular mark at the edge of its folded wings that looks like a bit of a leaf eaten by a caterpillar. The idea of a butterfly copying a leaf that has been bitten by a caterpillar is quaint, a sly touch in Nature. Better, there is an African butterfly—Papilio dardanus—whose female mimics a certain butterfly said to be distasteful to birds, but whose male, for the same purpose, mimics quite a different butterfly. It would not do for too many threatened butterflies to mimic one kind of unthreatened butterfly: the birds would "jump to it," suggests Professor Weismann.

As to the tiny light-coloured mark on the underside of the comma's wings, may it not be kindred with the rings and dots printed on the undersides of butterflies' wings? There is the painted lady, for example. Her undersides have several rings.

I hardly think it will be argued they cheat a bird foe. Dead leaves have fungus spots, but the painted lady's rings are not at all like these spots. Indeed, without her rings the painted lady might be obscurer at rest with her wings folded than she is with them : its eye and sense might tell a bird, " that object is not a dead leaf, because dead leaves have not rings like these : it is a butterfly, good to eat."

But, if I am asked : " Well, what is the meaning of the ring on the painted lady's underside if it be not a mimicking mark ? " I cannot give a clue. The ring, like the comma, is wholly a mystery to me.

THE BIRDS' CLOCK

If some virtue has gone out of the broad day, with midsummer past, the evenings have lost none of their enchantment. It is not till the close of June or the beginning of July that we become fully alive to the beauty and the spell of the longest English twilights. The eves at midsummer and just before midsummer are rich and glowing when the mowing grass is ripe for scythe or machine cutter and swaying heavily to the lightest breeze after sundown ; but I think there is scarcely about them that sense of deep and deepening quiet, which often marks those eves of the second half of summer.

Such twilights after a hot day have the quality of defining with beautiful clearness or sharpness every sound of bird, insect, and wild thing in the fields and woods. This perfect definition of sound in late June and in July twilights is as marked as

the perfect definition of things then seen against the horizon and in the afterglow of the west. The deep-hushed, glowing July twilight is like a plate sensitive to the finest lines, to the delicate touch of the etcher. Every skyline on this plate of the late summer eve is touched out as on copper, and the sounds are as sharply expressed as the sights. This is putting it clumsily, but it is extremely hard to say what one feels and knows so well about these magic minutes of the ending day.

The thrush note, beyond all other bird notes heard in England, belongs to these minutes. Its definition is sharper on the plate of sound then, than at any other time of day and season. How the song-thrush's phrases, those plain-spoken bird words, rule in the deep calm! I should think that ears the least attentive to bird song and the lesser voices of Nature must be struck by the ring of these twilight notes. Birds' songs in England may together make a clock, like the blossoms of plants in the garden and the wild scarlet pimpernel, evening primrose, the speedwells. On this clock the latest singing thrush signifies in the South of England five minutes past nine if the eve is serene and clear. I have noticed this often in different places. But on June 24 one season I did hear thrush notes ring out strong and clear at ten past nine. They came from the thick grove of beech trees that line the railway for several hundred yards near Micheldever Station, on the downs. Perhaps the trains kept this bird awake beyond the right time for thrushes.

Several special trains were running past Micheldever about that time ; and there is nothing like sound, unless it be the sexual fervour of early spring, to impassion singing birds and urge them to fresh effort.

The clock of bird song is constantly altering with the altering seasons, but it really does afford a sort of timepiece to those who care to follow it with nicety. Thus, as the last song-thrush notes on a rapt July evening early in the month tell me it is nine or five past—exceptionally ten past—so the first lark notes on an early June morning tell me it is just about two o'clock. These are the only two birds that I have timed in June and July exactly, but Major Arundel sent me from High Ackworth, in Yorkshire, a bird time-table for a night and early morning in June.

11 p.m., landrail ; 11.12 p.m., sedge warbler ; 12.10 a.m., grasshopper warbler ; 12.45 a.m., nightingale ; 2.5 a.m., skylark ; 2.25 a.m., whinchat (five or six whinchats heard before a note of the song thrush) ; 2.30 a.m., song-thrush ; 2.35 a.m., blackbird and cuckoo ; 2.40 a.m., redbreast ; 2.55 a.m., hedge sparrow and yellow bunting ; 3 a.m., whitethroat ; 3.2 a.m., swallow ; 3.5 a.m., tree pipit ; 3.15 a.m., pheasant ; 3.20 a.m., willow wren ; 3.25 a.m., chaffinch ; 3.27 a.m., rook ; 3.33 a.m., greenfinch ; 3.40 a.m., turtle dove ; 4.7 a.m., martin.

Some of these entries would be of no use in contriving our bird clock. The nightingale's song does not give the smallest hint as to what o'clock it is ;

nor the grasshopper warbler's, sedge warbler's, landrail's. These birds are heard constantly through the night as through the day. I should think the nightjar, followed eve after eve very exactly for periods of both fine weather and wet or cold, would be helpful; he probably strikes up each eve at the same state of twilight, tending to begin a little earlier as the days shorten. The nightjar sings again at dawn. I have heard the song about half-past two in the morning; the place being a wet heath and wood where there are always nightjars and grasshopper warblers. But the nightjar will also sing in the moonlight, sometimes at midnight and at one o'clock, as I found one summer at Shoreham in Kent. Thus, his song may be more or less continuous or spasmodic from eve till dawn; and if so the nightjar would not be trustworthy save for the evening hours of the clock.

The call note of the redstart is heard very late, almost on the verge of dark through July, and I doubt not the bird is as exact a timekeeper as the thrush. The redstart might well be on the bird clock for late summer; but I only speak of his poignant call; or "alarm note" for, though I have known redstarts during most of my life, I have never heard their song.

Major Arundel was surprised to find the whinchat an early morning singer. He says it sings, too, late in the day—even at dusk. I have only heard whinchats singing in full daylight, but of late years I have not heard them at all. The swallow I should

not hesitate to include in the clock. It is a very early morning singer in July and August, striking up, I feel sure, at the same state of light dawn after dawn. Waking very early one summer morning and hearing the elfin air of swallows at the window-sill is a thing not soon forgotten. The swallow song is made up of a multitude of minute melodies all low in key and sweet. It is a quick little jumble of a song, without art and power, but the effect is delightful, and when we hear it before we are wide awake, there is something fairylike in the thing.

The song-thrush may not tell the time so precisely in the morning as he often tells it in the evening; still, he can tell it then, I fancy, to within half an hour. He is one of the very early musicians —one of the last to drop to sleep, one of the first to wake. I think he is usually awake some time before the blackbird, though it chances that on the list I have given only five minutes separate the two. The redbreast comes after the thrush, when the cuckoo is not shouting; but the cuckoo, when in a song, may be awake and a-wing even with the skylark. I often hear him soon after the first faint glimmering of light, and now and then in the middle of the night in May and June. But the cuckoo is calling at any hour then; he is of no use for the bird clock.

Sleep is so precious—infinitely precious where its quantity is small—and so perishable that we cannot value highly anything that hurts it. I I cannot say nightingales ever robbed me of sleep,

but I can understand the feeling of those who have been kept awake by nightingales. "Turn the key deftly in the oilèd wards," says Keats in that exquisite sonnet on sleep, but "the hushèd casket of the soul" cannot be sealed if nightingales, or in the May morning cuckoos, are loud and frequent. Still, it is rarely the nightingale forbids sleep, and at the worst the window can be closed against it. I may now and then have regretted having ring-doves close to my window at dawn, but to me there is only one grievous offender—the sparrow. Happily, he is not a very early waker; he rouses long after skylark and thrush and redbreast. But once he rouses he can give pain. Awake at dawn, and caught by the blatant chirp and chirrup ere he can get to sleep again, with how whole a heart does a man hate sparrows!

THE SHADOW BIRD

Leaving the village station a few minutes before nine I climbed the hill and brushed my way up along the path, narrow and askew, that runs through the hazel copse. It is all overgrown by Midsummer day—a mere tunnel through the green. There is an enchantment about these dim, winding woodland paths at such an hour and time; and a sense of aloofness and detachment from the world holds one then.

The voice of the nightingale in these spots has been succeeded by the voice of the nightjar. On the evening of midsummer day nightjars were gurgling and crooning and jarring with a sweet low note

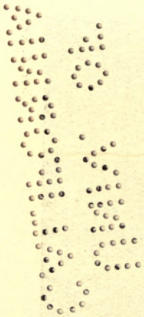
around me. When I reached the end of the high hazel shoots I saw one of the birds at once. It wheeled about me under and amid the oaks, moved silent as a shadow, and though it came within three or four yards of me, I only once heard the faintest sound of wings. This bird seemed almost fearless on the wing, though when it alit on the ground—once on the rough farm road along the cross side—it seemed more shy. At first I thought it might be trying to draw me from its eggs or young, but soon I saw it was hawking for insects.

On this evening I saw it hover at the edge of the copse and sweep an insect off a hazel leaf; whilst often it hovered for several seconds in the open five feet or so above the ground. I think it may hang itself thus in the air to look around and note if there is a chaffer or moth within range, and, seeing one, glide off in pursuit. The action of the nighthawk whilst hovering differs, I think, from the kestrel. Whilst it hangs in the air the nighthawk's wings beat strongly, and each stroke must be a full stroke. The kestrel, well poised, will often hover with only a slight fanning of its wing tips; for a fraction of a second it seems to be balanced motionless. The nightjar can only remain stationary by incessant vigorous wing play. Its ease in the air is superb, but it appears to be ease got only by quick and full wing action.

The tawny owl is all buoyancy; I put one off its perch in the Sussex glen, where it was causing a scene of frenzy among the clinking blackbirds and some

Photo. E. Reid

LONG-TAILED TITS



willow wrens and other small birds with young; but, despite its buoyancy, the owl struck me as far less graceful on the wing than the nighthawk. The quick smooth, silent sweeps and curves of the nightjar are fine to watch.

The headlong speed of the swift, the long hanging glides of the high borne swift, the resounding cuts through the air of the swift—these the nightjar has not. Yet he too is a master in wingship.

IV

THE GLIDE OF GULLS

ONE of the most enchanting things I know is the nesting of herring gulls in mid-June. I went down to their stack-rock eight or nine times and watched that wondrous scene, with its whirl of puffins in the gold dust of a Cornish sunset.

At the moment I have in thought the way a thousand herring gulls pass up the glen to the high plough lands and pastures where they seek their supper. Eve after eve, these noble white and grey birds take the same route from the sea, flying in parties large and small over the glen, always going up to their feeding grounds low, always coming back high. The journey from the sea to the fields is made by wing strokes, but the return to the sea by an almost strokeless, effortless glide. The quarter of the wind varied on different evenings, yet, whatever the quarter, the gulls *stroked* their way up from the sea and flew twenty to sixty yards or so above the topmost trees of the glen and its neighbouring fields. Is it that a gull cannot glide easily or quickly in these lower realms of air ?* Must he be on high to

* The Arctic skua at any rate can glide on motionless wings for many minutes at a stretch only a few feet above the sea. I watched this wonderful feat in the Mediterranean in 1911. The skua is a magical performer in flight.

glide with supreme ease? Then is he like the swimmer needing deep water to float in.

I sat out in the garden near Tintagel each evening and watched the herring gulls flying up from the sea. Many were quite close to me, the light was good for the first half hour of watching; and I believe Pettigrew and Marey were wrong about the flexing of the bird's wing in the up-stroke. I did not see a single gull fold its wing at all in the upstroke. Deceptive as flight in its mechanism is to the eye, I feel sure there could be no deception here: the herring gull's wing is raised in the up-stroke just as extended and unflexed as it is lowered in the down-stroke. I watched this, and others with me watched, and we agreed that the wing of every gull in the upstroke was kept rigid. Perhaps some other birds fold the wing in the up-stroke, but I have not seen it. I should say that the mechanism for folding has been so wrought that the bird, leaving the air, may be able to lay back its wing on its body. The fit of the wing against the body is faultless the one looks as if moulded for the other.

The gulls return to their nesting rock in those long, smooth, glorious glides. They will glide a quarter of a mile without a stroke, though now and then I notice the tip of the wing, the eloquent tip, make a slight move. Never lose sight of a large bird's wing tip when you are watching flight.

SUN AND SHADE BUTTERFLY

To make a little series of exact butterfly studies, original studies, means many hours watching and searching spread over years. It often means disappointments too. One cannot count on finding this butterfly or that on a certain day or week in the summer, for their seasons vary with the weather. The scarcer or the more local butterflies have a way, moreover, of suddenly disappearing, from no cause one can discover, from their known haunts.

At a certain spot in the south I used to find the wood-white butterfly, and the speckled-wood butterfly. The speckled-wood came out late in the summer—almost last of the butterflies—and I always found it in the same spot, a narrow track winding in and out among the wands of hazel and the oak trees. Even on cloudless days this walk through the woods is half in shade if half in sun, and I came to associate the speckled-wood, like the white admiral butterfly, with a moving network of light and shadow made by the sun playing in and out among the rustling leaves. Now after many years I have found the speckled-wood once again—though much earlier in the summer, and far from the hazel and oak wood. Watching it, I am confirmed in my belief that it is a butterfly that loves a blend of sun and shade. How different the speckled-wood from its near relative, the wall butterfly, which cannot have too fierce a downpour of light and heat!

The wall butterfly flies in the least leafy places, often settling on the dusty road or track, and casting itself into sun trances in spots that look least fit for butterflies. The wall butterfly reminds me of the corn bunting in its carelessness as to environment: the shoddiest places on the outer fringe of towns, where land is " ripening " for the builder, will do well for either.

I have found this butterfly quite at home among the cast-off kettles, the broken crocks, the make-shift posts or palings that fence thistle plots destined for unthinkable gardens: though I have found it too on the glorious hills of Sicily among the wild palms, and down in the Sahara Desert.

Only give a bunting a dusty bush or clod of clay to sit upon and stutter from, only give a wall butterfly the glare and burn of the sun, and they are happy.

But the speckled-wood's lines are cast only in lovely places. He does not haunt highly " eligible " building plots or " residential " districts. He wants the true wood lane, or the footpath winding through the woody glen. He is an epicure in environment. In a glen in Cornwall I met with the speckled-wood. A little trout stream babbles down the kieve and the sides of the glen are covered thick with oak and sycamore and ash trees. Pennywort with the curious green blossom grows in every chink of slate rock, and the wood-sorrel is at home here as in the Highland or Yorkshire glen.

The speckled-wood sits and suns on a bramble

leaf at the edge of the path—nearly always the same bramble bush, even the same bramble leaf!—his pretty wings, brown and cream-spotted, half open and half shut. He sits just where the sun and leaves and breeze contrive a moving network of light and shadow; and on and off he sits thus by the hour.

Sometimes he flits to the next ideal sun and shadow spot for the speckled-wood butterfly, only a few yards away, but will be back in a few minutes—back to the favourite leaf or the bramble bush.

Every butterfly that passes must be chased, white butterfly, fritillary, skipper, blue; even a bumble-bee—lest it prove butterfly—is charged. The speckled-wood bears no rival on the bramble bush. He owns that bush; his mate and no other may share a leaf of it with him. The speckled-wood has no enemy that I can discover. No bird foe seeks this little solitary. He needs no leaf mimicry on the undersides of his wing; and, stooping down and looking close at him, I can see no mimicry. His undersides, save for a ring or two, are inconspicuous—that is all, a sort of negative protection at most. I have always admitted that the grayling butterfly of our pine woods and chalk hills does, with wings folded, resemble his environment closely; though I can find no foe for him to cheat thus. But a speckled-wood butterfly is only like a speckled-wood butterfly.

THE HAY FIELD'S TINY FLOWERS

The rough hay field on the sandy hills and hollows is not a place to miss just before the coarse mixed crop goes down. Among fescue and foxtail grasses and the red glow of sorrel seed is a miniature flora of exceeding beauty. But it has to be searched into, has to be sought out in littlest, ere its choiceness can be understood. We are driven to the magnifying glass—the eye is almost powerless without this aid.

Wandering knee-deep in these dusty highways of the hay, I find the corn spurrey in patches everywhere, the lesser stitchwort so abounding that on many a yard of earth there must have been a thousand of its blossoms. At one edge of the field, in a moist spot, alkanet, our lesser bugloss, was peeping through the tangle of spurrey and chickweed and storks-bill. Veronica speedwell has not a purer blue than little bugloss, azure of the azure. Bugloss can be admired to the full without the glass. But not so the pearlworts and sandworts and spurreys. Until the glass guides the eye to the centre of the spurrey's petals, we cannot realise the beauty and perfection of the blossom, its delicate veining, its coloured stamens and pistils, and the glistening stores of nectar there to draw the insect. It is the same with the deep-cleft petals of lesser stitchwort, ten of them, how finely pointed!

The least bird's foot trefoil grows at the field edge. Of all these miniature blossoms, here perhaps is the

choicest. It has a bright yellow keel and white standard and wings, and on these are painted a tiny picture of waving purple seaweed.

A GULL'S MAZY MOTION

It was on the last of the seven or eight days I spent watching the herring gulls and puffins on their nest cliffs that the Cornish scene opened out in its full glory. Thirty miles off, though it looked no more than seven, Lundy rose sheer out of that midsummer sea, the deepest blue, thick pigment-blue sea one could imagine, a colour wholly different from the mild azure of the sky. What struck me most about this colour was its immense area of sameness. From the strand just beneath me to the hard-cut rim of the horizon, north and east and west, the colour was absolutely the same—no bands of purple here or grey or green there, such as vary the seascapes of the Solent and many of the bays and inlets along the southern coast.

In this great scene I found the lesser black-backed gulls or saddlebacks, herring gulls, puffins, cormorants, razorbills, guillemots and jackdaws busy with their eggs or young. I was too late for buzzard, raven, and peregrine which nest in the tremendous slate rocks, almost black rocks, rising out of the water that at the slightest breeze lashes and whitens and raves. In half a mile of these cliffs five buzzards nested a spring or two ago, and I saw two old nests, I think, of the raven, one built on a shelf of rock in a hollow of the sea wall, which scarcely a roped man,

even the boldest and deftest, could dangle into. But the birds of prey were not to be seen—only a kestrel here and there glided round the cliffs.

There are the Long Island and the Short Island and the Sisters' rocks full of nesting gulls or puffins. On one of these stacks a pair of saddlebacks were nesting amidst the herring gulls, and as I lay on the cliff watching the hen sitting, her mate came up and swung round and round me, barking or yapping, and groaning with that deep strange groan of his kind. He went off after a while, only to return and swing round me again—miles of mazy motion!

I thought that if it were possible for any bird to excel a herring gull in air-ease, the saddleback might be that bird, so glorious, so full of power and grace was its action over me in the sea breeze; but I doubt whether the saddleback is really a greater master of the air than the other.

Long and Short Islands have each a large party of puffins, which burrow like rabbits in the slanting sides of these rocks, where there is some crumbling matter. But I found it easier to watch them at close quarters on a crag of cliff that has burst off from the mainland, the crag called Lye Rock. All day these curious birds, with guillemots and razorbills, are flying to and fro between the slants and ledges and the sea, but at the height of their nesting season they engage at sunset in a wild whirl, sweeping swiftly round and round near this rock. When I first saw them whirling thus, I was half a mile from

the spot. The air seemed thick with black specks in the gold haze of the sunset.

Next evening I climbed on to the slope of the cliff close by, and was so near that a crowd of herring gulls took the air above me, mewing, laughing, wailing at my intrusion, whilst amidst this uproar sounded again the bark and groan of saddlebacks, which were nesting here as on the stack rocks.

The young herring gulls were beginning to hatch out, the little downy chicks running about among the great white and grey fowl. Two chicks had left the nest, and I saw the mother hustle them off into a tiny cave near the top of the rock. One chick amid the puffins' burrows was just clear of the eggshell. It kept perfectly still for half an hour or more, and its mother, standing by, never stirred. I suspect this stillness of the herring gull chicks is often needful for safety. There is a " gut " or inlet of the sea a little way from this rock where the herring gulls' nests are set on narrow ledges and terrible slants ; and on one of these slants I saw a new-hatched chick which must have fallen into the swirling waters beneath, had it stirred much. It lay still as egg in nest.

Till the wing is ready the secret of life for many of these chicks must be stillness. And how soon the wing *is* ready ! The last day I went to this fearful looking gut, a crowd of a hundred herring gulls were sitting close together on a bit of turf sheltered from a tearing storm of wind and rain. They rose at my approach, and I saw that amongst

them were about a dozen young, which swung and glided and soared with all the ease and power of their parents. A young gull's wing at mid-summer seems to grow with the speed of many a plant in May. It is hardly in the air before the air has made it perfect.

A puffin is comic where a saddleback or a herring gull is noble in mien and pose. Yet a puffin, despite its feeble-looking wing, its auk-like wing, is fast in flight. It works its wings at a great rate, and the result is swift and straight flight. The sunset whirl of the puffin—a whirl, I doubt not, of ecstasy or passion—is most strange to see. I never saw its end, and I dare say it goes on far into the night. Bringing a pair of glasses to bear on the puffins as they floated on the sea below the stack islands, I found they were illumined by bands of rose and purple in certain lights, just as the swans and tufted ducks and pochards are illumined on the lake.

CUCKOO AND REDBREAST

Two years running I saw the young cuckoo fed by the pipits. This was on a Northern moor, where the bird is hatched later than near the South Coast. One year the young cuckoo was being fed in August by a pair of meadow pipits ; next year, at the same place, a grass field at the edge of the moor, one poor pipit was feeding two cuckoos that were almost full grown and strong on the wing. Now in a third year, in Sussex, I have found a new foster-parent of the cuckoo—the redbreast. The redbreast

is on the long list of birds in whose nests the cuckoo's egg is placed, but I think it is not often the cuckoo's host. When I saw the young cuckoo waiting to be fed, I guessed a redbreast to be foster-parent. The cuckoo squatted on the bare, lower limb of an oak in a sandpit. It is a shady spot, with a path and high bank near by, the very spot for a redbreast's nest in April and May, and I heard a redbreast's sharp "it-it" note just as I caught sight of the cuckoo.

The cuckoo has an agonising appeal for food to its foster-parents—and, should they be missing, perhaps to other birds on the long cuckoo-serving list. It cries to them, in a way irresistible, to come instantly and appease this awful gnawing worm of hunger that all day long is eating up its vitals.

It cries sometimes with a whole nestful of nestlings' cries—not one nestling calling for food, but a brood of nestlings—and is this not as it should be, considering the cuckoo is a nestful of itself? It has hefted out all the others—itself is the brood of young.

It has, besides this series of irresistible nestling cries, a longer, a drawn-out and wearisome single cry, at once peevish and imperious, which it repeats over and over again. How strange—not only does the cuckoo's egg mimic the eggs of the bird in whose nest they are placed, but the young cuckoo mimics the cries of the young birds that ought to be in that nest, and are lying dead beneath it! Between the note "cuckoo!" and this impatient bird-baby

squeak for food is not the least likeness. Many nestlings' cries may be wholly unlike the note of the grown-up bird of their kind. But here, in the cuckoo, is a young bird that has left the nest and is almost full grown.

Its flight is full feathered. Though it rarely moves far from its haunt till it has found that it can feed itself better than its foster parents feed it, it can fly strongly. It is swift on the wing, and glides and skims like a hawk. It is easy to understand that in a few weeks' time the young cuckoo will fly to Africa with perfect ease. The cuckoo looks full equipped for a long journey a fortnight or so after it has left the nest and is still being fed; the corncrake never looks equipped for even a short aerial journey.

The cuckoo nursed by the redbreasts sat on a leafless lower limb of an oak tree in the pit. It flew off when it caught sight of me, and was too wary to return whilst I waited. But I thought that if I went away for half an hour and returned I should find it back on its oak. Sure enough, half an hour later I found it on the same perch and being fed by the redbreast. It soon caught sight of me and swung off again into the wood.

I have seen enough of young cuckoos to know that it is their fixed habit, after leaving the nest, to post themselves on a bare limb or a railing, where their foster parents cannot miss them, and from which they can keep a sharp outlook against foes. I believe the young cuckoo only perches in the leafier parts of

trees when it is driven there by alarm ; or sometimes perhaps during the downpour of the sun on July afternoons.

The young cuckoo succeeds by advertisement. He has the appetite of four or five young hedge sparrows, redbreasts, or pipits, and can get enough food only by forcing himself on the notice of the little birds that have been cheated into adopting him. He advertises himself by keeping always in the eye and the ear of the little bird. There is no mysterious enchantment about the young cuckoo. Birds wait on him with greater devotion than they wait on their own chicks because he clamours louder and longer and thrusts himself to the front more than those chicks can. Imagine a hedge sparrow or pipit chick fling the young cuckoo out of the nest and clamour as loud as he clamours and advertise as persistently—the parents would wait on their own chick as anxiously as they wait on the cuckoo. There is no charm in the cuckoo beyond the charm of ceaseless self-advertisement.

THE YOUNG CUCKOO

Photo, R. B. Lodge

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LAND FLIGHT AND AIR FLIGHT

THE wind made flight and the wind will always mar it. Any one often watching sea or land birds fighting against strong squalls must see how great is the problem of artificial flight. The airman starts in a calm. Now try to imagine the day when his vessel shall set sail in the storm! Where one falls into the water or on to the land to-day a hundred might well fall then. It is not so much the hard-blowing, straight and even wind that must always be a deadly peril to the artificial flier. It is the vicious squall, the uncertain gust, shifting its quarter and changing its pace. I have seen a hawk among the trees half-helpless before such fickle winds; and, in downs and high unsheltered hills, finches, buntings, and other small birds will hardly venture from the hedge till the storm abates. Yet here is flight in which is no danger of an actual tumble to earth, and no danger of the crashing up of machinery and material, among which the flier may perish.

It took Nature an æon to fashion out her flying thing complete; and yet she has not fashioned a thing that can ride with absolute comfort and ease in great aerial storms. I must say that, after

studying natural flight closely for years, and studying it in many different creatures, I have little faith that these aeroplanes will weather great storms and squalls with safety. We have hardly overcome the water in storm yet—it may be a task far harder to ride the air in storm.

Birds, as fliers, might without much fancy be almost divided into two classes—earth birds and air birds. The wing of the house sparrow, the wing of the finch, or of the woodpecker, enables the bird to move with more or less ease from one spot on land to another. The wing of the swift, the swallow, the martin, the seagull and the petrel is to enable the bird to move with complete comfort and ease in the air, to feed and to rest in it, for hours at a stretch.

Though the earth bird, exceptionally—for example on migration—becomes a creature of the air, there is a great difference between itself and the air bird. Gätke believed that for migration the bird was endued with special powers of flight and endurance which it lacked at other seasons. I should incline to believe that the will and spirit that fills the bird at this time carries it through.

To get a good idea of the difference between the earth bird and the air bird, we may watch at this time of year the companies of swallows, house martins, and sand martins that hawk about and gambol at certain favourite spots; and, whilst watching, compare their action on the wing with that of the sparrows and finches often scattered

among them. Flight in the one class then strikes us as a different thing from flight in the other.

The swallow in the air is in its element. The sparrow in the air is, at most, but half in its element.

The telegraph wires by the stream is the place to watch these lovely little swallow and martin gatherings in mid-July. The first broods of the house martins are already as strong on the wing as the old birds; and they and the sand martins and swallows sit in rows on the wires, and in preening themselves outstretch their long, pointed wings, and twitter and chase one another in a charming way. It is one of the best bird sights of later summer.

SEA AND SUNSET

I wrote of the whirl of the nesting puffins in the blue and gold of a western sunset. In richness and immense area of two strong colours—the blue so material in appearance, the gold so ethereal—such a scene as this cannot be surpassed, if it can be matched, by sunsets along our English coasts. But one may turn east and often find among the bays and headlands of the south coast of England sea sunsets which match and surpass that one in variety of colour and light, and in the quick change and mixing of colours and lights.

I watched one of these changing sunsets at Durley Chine after a cloudy day. The sun, breaking powerfully through the cloud rack, filled the west with a wonderful golden smoke, which spread and spread over the purple Purbeck hills, at whose sea

wall the herring gulls nest almost as thick in places as on Lye Rock.

The white crests of the waves, and the foam they flung on the glittering sands, became, as viewed from the cliff above, a pigment, blue and thick, though not so deep as the blue of the north Cornish coast. Yet, at the time, there was no suggestion of sky-blue above and none on the great extent of sea surface itself; much of that surface near the beach and the breaking waves was a dirty, sand-coloured sea; whilst further from the shore, it seemed to be a rather dull olive green. How this blue of foam and lather is made I have no idea, but I notice that it only appears this colour between the eye and the sun—that is, when one is looking west. Looking at the foam and lather of the waves to the east, one sees the usual white instead of blue.

Presently the sun is clear of the cloud rack and refuse on the horizon. The photosphere glows clear and hard-rimmed a few minutes before it touches and rests on the purple hills of the bay, and then, instead of gold smoke, there is one of those pale yellow skies so often seen inland and along the coast. A few minutes more, and the sun touches the hill line, is cut by the hill line, and is seen as a moving object. It is easy, then, to understand the old obstinate error that it was the sun that went round the earth.

These are the supreme moments of the day, in summer and winter alike, when the hard edge of the glowing sun rests on the hard edge of the swart cliff

or down. There is sometimes at this season an hour of colour and glow in the sky after the disk has disappeared behind the hill or sea line, but it is not so good as the few minutes before it.

THE GOLDEN EAGLE

Going up Glen Tana from Aboyne in the burning sun and climbing the hillside above the golden eagle tree I was in for an adventure as fresh and fascinating as any of childhood. As the eagle lays her eggs in April, the second week in July seems late to visit the eyrie ; but the young stay long in the nest, and I knew the two eaglets in this eyrie had been seen there a few days before. So we started with high hope, and, working round the hill, came down from the open heath to a little cleft with a sprinkling of old pines. A hundred yards away the great nest in one of these trees could be plainly seen. The guide thought the birds might be still there, but my field glasses began to tell another tale as we drew near. A few minutes and we were within full view of the top of the nest. It was quite flat, slanting slightly down towards us. I could see the down about it, and on the branches around stirred by the breeze.

The young eagles had left it, and we sat down and tried to console ourselves with the thought that at least we were looking at an eyrie where the birds had been only a day or two ago. Later, I went up the tree. Presently I was right under the mass—a full cartload of sticks at least—and was seeking

the best way to swing myself round so as to mount above and look down into it, when I heard a flap, and a splendid young eagle, full-fledged, scrambled to the end of a branch within four yards of me. It had come out of a thick bough at the back of the eyrie, a spot I had not been able to see into with my glasses from under or near the tree. It sat there with its back turned to me—the first eagle I had ever seen! An eagle in a cage is as near the real thing as an eagle in a glass case: I would not walk half a mile to see it. In the idea of a caged eagle is something shocking.

Our bird sat on the branch-end for a full five minutes; then it launched itself into the air—launched itself for the first time in its life. How fine to see the grand bird give itself to its element, and with ease, slowly and fearless, swing away up the glen!

I cannot understand MacGillivray's notion that the eagle, rising from the ground, gets afloat with difficulty, even by strong strokes of the wing. Here was a young eagle that had not been off its nest tree before, and yet sailed with a noble ease. Why need the start for an eagle be harder than the start for a heron?

But the most glorious moments were not those when I climbed to the eyrie and watched the young bird perched at the end of the bough or sailing away into the element for which it had been shaped by an æon of eagle-making. They were half an hour later, when I had come down the old pine—swinging on

my chest rather uncomfortably once as I neared the ground and groped for foothold. I was brushing through the thick heath and blueberry, picking up some moulted feathers of an eagle when a shout from my companions made me look up. The parent birds were athwart the pine hill across the glen, gliding round and upward in great sweeps!

The swift is still, to me, the traveller of travellers on the airy way—the most constant and tireless traveller and dweller in it—because all day, from light till dark, the swift never leaves it. Nothing can spoil me for swifts.

But the eagle is sublime as he swings into the blue heights over the deer forest. The eagle is the bird of the sun, the bird of Jove.

The eagles, seeing us, mounted higher and higher, till my eye began to fail me and I had to rely on field-glasses. I could distinctly see both as they spired round and round, up and up, and there were a few moments at first when the glasses actually showed me the tawny colour on the back and neck. Then, as one of them swung up to a great height almost above me, there glowed on it those rainbow colours, spirit-like colours, I have often seen on swans and pochards in the water.

The body of the eagle turned to gold, and completely round the bird there ran an edging of intense, lit blue. . . . Gradually the eagle spired clean from sight . . . my glasses failed me in the burning glare overhead.

I sought the other bird, and found it a mile above

the glen. It was still spiring on motionless wing. But it was not alone. A small bird was keeping the eagle company. I saw this little thing exert all its speed and wing power to get above the eagle; but, whereas the eagle moved as if caught in a calm, its companion moved as if tossed in a gale. Its wing was all motion where the eagle's wing was motionless.

Once the small bird did get above the eagle and rushed down as if to strike. Then I saw this ridiculous thing: the eagle flinched!

But the small bird was gone soon after this. Perhaps the height grew too giddy; it drifted off, and was lost to view. That small bird was a peregrine.

How does the eagle wind its way into the skies without motion of the wing? I have seen the feat done by lesser birds. The rooks, in those mystic aerial parties they often hold on an autumn morning, spire up with little or no wing movements. The herring gulls spire higher than rooks.

But the eagle spire is grander. I could see no movement in the eagle's wings when it was above the hill-top; and only once, whilst it swung round athwart the great pine brow across the glen, did I see a strong wing stroke by one of the birds. No, the eagles do not strike their way up by small or large movements of the wing. I think they plane their way up by constantly changing the angle at which the wings are presented to the sky. I know these angles are ever altering—I saw this in the

eagles as I have seen it in rocks and herring gulls.

There was a feature in the full-fledged young eagle, as it sailed away, at which I wondered much—the edge of the wings at each side were turned up, exactly as are a rook's or carrion crow's. I do not think I looked for this feature in the parent birds, but I suspect it is common to old and young alike. It was the last thing I should have looked for in an eagle; rather, I should have looked for the clean, keen edge, as in the wings of herring gull or swift.

In another thing an eagle is not what I vaguely imagined—where is its gold? I do not believe there is a trace of gold on him. The yellow of the talons and the cere is not gold; the tawny is not gold. The young eagle that sat within a few yards of me was chocolate brown; his whole plumage smooth and shining and flawless. The eagle is only golden when we watch him through the glasses in the blaze of light.

THE JACKDAWS

After watching the gulls and guillemots on their nesting rocks, one has not much admiration for jackdaws. After them he looks rather plebeian. At one of the few remaining haunts of the chough, and about rocks where we are in hopes of seeing a raven, we wish for no jackdaws. The chough does haunt this west coast still, and there is no doubt it still nests in one or two spots. A shepherd told me he had seen a party of choughs quite close to Lye

Rock only the day before I was there, and I heard of single birds and little parties of birds in the same neighbourhood seen by friends. All I could find were carrion crows and the endless jackdaw. One cannot overlook jackdaws along that coast in June. Thousands of them nest in the crevices of the rocks. They insist on being noticed. Jackdaws seem to be privileged guests among the herring gulls as they are among the rooks. Pushful and impudent, they will fly down right in the midst of the sitting gulls. Yet they are borne with. Only once have I seen a gull lose its temper, run at and drive off a too assertive jackdaw; but a gull will sometimes lose patience with a puffin in the same way; and, on the whole, I think it likely that the jackdaw is privileged on the rocks, as it is privileged among the rooks, because it is on good behaviour in both places and does not touch the eggs.

There is not much desire, then, to watch these cliff jackdaws whilst one is intent on the saddlebacks and the herring gulls. Yet the daws *will* be watched, they are so many, so noisy, always in sight and sound at the nesting time. Hundreds of pairs were nesting in the mile of cliff where I was watching the gulls and puffins. They strike me here as brazen birds; there is something of a house-sparrow's gamin about them. They bustled in and out of their rock chinks and clefts unconcerned at my intrusion.

A jackdaw has not a great power of flight. He is tossed in the strong sea winds. He cannot cut or glide into an opposing wind like a gull. But he

faces it fearless, and somehow he soon reaches the spot he aims at. He lays back his wings and dives down into the wind in the shape of a V. This is the characteristic figure the jackdaw of the sea cliff presents in the air.

THE GLEAM

There is a feature of sunsets seen from the cliff, where the sea gulls float and swing, that is finer, I think, when the sky is cloudy: I rarely notice it on the great summer evenings of glow and vast expanse of rich colour. The feature is the long spike or the ruled line of gleaming white or of gleaming gold on the water when the sun is piercing through rents and thin spots in the clouds just before setting. To some eyes these spikes, at this time—indeed, at any time of year—are the finest effects of sunset by the English coasts. I have noticed them more among the bays and harbours and estuaries of the south coast than where the sea beats up at a straight cliff line. To one looking west from Durley chine to the Haven at Poole Harbour, and towards Studland and the Old Harry rocks, these effects during cloudy sunsets are often very fine.

A silver gleam lies at the harbour bar beyond the haven, and, as the sun gets over the Purbeck downs, the long spikes of intense white or intense flaming gold shine on the distant water.

Such sea coast sunsets of gleam and shine in lines or spikes on the water are not often full of colour. The sea on which these lines alight is no splendid

blue or green, and the hills beyond the bay appear a subdued purple or a dove colour.

The sea adapts, rather than adopts, the colour of the sky. It mixes and makes its own blues and greys and greens. It is never servile to the sky. But it is sympathetic in tint; so that when the sky is overcast the sea is sombre, and the cliffs and headlands and the curving coast lines wear quiet colouring to match. And these sober lights and colours along the English coasts are often extremely beautiful. Often I have seen them in this Poole Bay sphere of sea and coast. The beak of Hengistbury headland, now brown, now purple, constantly changing with the changing lights, and in the far distance the grey white wall of Scratchels Bay by the Needles—these are features of the seascape always appearing in some new light.

COLOUR

At the hottest glades in the fiercest hours of summer, birds feel the burn of the sun, and suffer from it sometimes, but the dragon-fly depressa never flags. It may not be, like the butterfly, a constant worshipper of the sun. It will fly, and live its full life, in the shade, if needs be; and it shows none of those ecstasies or trances in sunshine that mark the butterflies. Yet it hawks through the hottest hours, and it is only in the sun that its beauty is well shown. At its birth as winged thing the male is clothed plainly as the female, but by and by a fine blue dust appears

on the body ; then we see depressa in all its bizarre, rather repellent beauty—at least the great staring eyes of the dragon repel.

I saw depressa, in a glade in Woodlands Wood, in the New Forest, return to the same dead twig perch after each whizzing excursion in the air. It would bring the prey to this twig, and I could see it feeding there. It attached the value to this bare, burnt twig that the small heath butterfly attaches to a chosen inch of ground and a chosen bennet in a field of rough grass ; and, scared away, it would yet return after a few minutes. The blue dust on the dark, thick body of depressa had nearly all rubbed off ; only two spots or dabs still appeared on either side of the body.

This dust is like the scales of the butterfly's wing, almost like the bloom indeed that overlies the scales —it is spoilt by the least rough usage or by weather. To those who can admire depressa without the reservations which I make in admiring it, perhaps the vanishing of the blue dust still leaves the insect very beautiful ; and they may say of it, as Spenser of his mistress, that depressa " adorns all ornament " of colour. None the less, this blue pigment must be valuable to the insect in its career. I have little sympathy with reactionaries who deny the value of colour in courtship.

Colour may be almost love seen from another side ; as Matthew Arnold tells us beauty is truth.

But why, as we turn south, should the creatures of colour—on the whole—grow gayer in tint ? Why should our brimstone butterfly be replaced,

or added to, in Southern Europe by the Cleopatra brimstone which has two large blotches of orange on the sulphur? Why should our orange tip butterfly be represented there by the "Glory of Provence" butterfly, which has the orange tips laid on sulphur instead of on white? Why does Nature paint the lily thus? To say that she does so because the sun shines brighter and longer there—this is no reply. Besides, she does not always do so. Some of the chief butterflies of the Tropics are black and white: what they lack in lustre they make up perhaps by the brave cut and pattern of their wings.

ARCHERS AND CLIMBERS

One day whilst I was watching the herring gulls and saddlebacks of the Trevalga Cliffs they soared to a great height. This was half a mile from the sea, and on a stormy afternoon. They swept up the glen and swung round and round and up and up in circles till the highest climber of them all seemed to be hanging a mile above me.

As they streamed and sailed aloft, they broke into a tumult of voices, wailing and mewing just as when I visited their nesting rocks—"a mighty unison of streams, of all her voices one."

The meaning of these grand concerts of music and motion among gulls when the air is full of storm is obscure, though the thing is not at all uncommon. I remember seeing it over London on dark days of high wind in autumn or winter, herring gulls and blackheaded gulls soaring and spiring high over St.

James' Park, and near and over the river. The wailing voices of the birds might give the idea that they were confused and disquieted by the threatening weather, and were hanging about between the stormy shore and their feeding fields inland uncertain what to do. And it may be that high winds and louring skies confound the gulls. But it would be hard to give a good reason for this, seeing how much at ease herring gulls and saddlebacks are in ordinary storms.

Whatever the cause, the sight is fascinating. The gulls are not perhaps the perfect example of soaring and spiring flight. They do not engage in it so often or carry it out with such finish as some of the falcons and hawks and eagles. But it is real soaring and spiring; the same force that lifts the eagle or the condor lifts the herring gull and saddleback, and winds it round and round with wings full stretched; the same, too, with that humbler climber of the air, the rook.

No theory of flight and no theory of the action and movements of the air account well for this feat of mounting by inaction into stormy heights and floating there without sign of effort. Upward currents of air sucking the birds from the earth to the clouds is the common theory. The sea gulls give some support to the theory by the way in which they often swim and spire upward on rigid or all but rigid wing over cliffs where there is a strong upward current. A hard wind blows in from the sea against the side of the cliff wall, and is deflected

at a right angle straight upward. It is so strong at times that a pebble tossed over the edge of the cliff will return to the thrower ; and in such winds the gulls soar at ease. But they will soar and wind into great heights in strong winds which there is no reason to suppose are deflected upward. On the whole, I am not now much attracted by this convenient theory of upward currents. I fancy that when a hawk or a rook or a gull wishes to spire and soar, it will do so whether there is a strong upward current or not. But whatever is the case as to the master-soarers and spirers—stork, eagle, lammergeier, and condor—our own humbler performers in England seem to me to need, or at any rate choose, an air breezy, even stormy ; I have noticed this especially with the herring gulls. In mounting they often change the plane of their wing, and " roll " the body now to one side, now to another. Besides this, there are a few minute movements of the wing tips from time to time. They are so slight, it might be thought they could little avail the flier on its way aloft. But I believe they may avail and that each faint-looking stir of the wing may be screwing the flier upward, so exquisitely is the wing tip contrived for working the air.

I watched the herring gulls for seven or eight evenings up the glen, and save once they flew straight and with precision to their inland feeding-grounds towards Camelford and the country about Brown Willy Moors. There was no soaring and spiring and hanging with indecision and clamour

about the glen half a mile from the sea. But on this evening the conduct of the birds changed. They hung and soared in the wind, some of them at great heights. I do not think that upward currents of air caused this change ; and, given an air in commotion, I believe that the herring gulls, and the rooks too, can always engage in these flights.

The herring gull is the climber of the air, the swift is the archer. The swift shoots through the skies from its own bent wing as an arrow from a twanging string !

When I watch the archer I feel that he represents the finest effort which can be got from feathered flight. His seems the master feat of all these glorious actions of wing. But when I watch the high soaring and spiring of the herring gull or the lesser black-backed gull's miles of mazy motion round his stack rock, I think that here are the master feats. Probably there is really little to choose between them in perfect ease and grace.

The swift is speedier, because he needs high speed for his way of life and travel ; but the herring gull has this not less noble gift to climb the skies in a breeze without the effort we associate with climbing.

THE SPOTTED YELLOW MOTH

Flight, natural and artificial, has to-day a hundred students, perhaps, to each one it had when, some years ago, I began to write about it. I advise all who are interested in it to watch and compare the styles of different birds and insects. The variations

of insect flight are far more numerous than those of birds and bats. The difference between the paper-like flutter of some of our butterflies and moths and the tremendous energy of such insects as the syrphi and some hawkmoths is greater than the difference between the weakest bird flier and the strongest. It often seems as if the thin-bodied moths can only go where the air by chance carries them. That was my notion for some time, but, watching closer, I incline to think their course is not quite so random.

In June I saw a pretty and gay moth, named the spotted yellow, macularia, in large numbers by Cornish roadsides. It flies by day, and, though not one of the feeblest-looking moths on the wing, takes a course that seems random. Macularia tacks and zigzags along, and appears to fall anyhow into the roadside herbage. I saw it on a lovely day when the burnet rose was full out in the hedges and what a blue was the Cornish sea that day !

It is hard to get out of the habit of thinking that the spotted yellow or the carpet moths are carried by chance anywhere, have no wing-will of their own ; but I believe the habit is wrong. These insects, despite their appearance, go where they need to go, in pursuit of nectar or in pursuit of love. They are not so much at the mercy of the smallest puff of air as we may think. But mainly it is the weightier-bodied flier that can steer straightest among insects and master the air better. In natural flight, weight can be an aid, part indeed of the flier's equipment.

Once it is well launched and driving through the air, the body by its own momentum carries forward the bird between the wing strokes. It would be quite wrong to suppose that birds are light and small because heavy ones would never be able to fly. I doubt not the swan or the eagle could fly with power were it twenty times, a hundred times, its present weight, provided its wing area were large in proportion. Weight, rightly shapen and adapted to motion in the air, is no hindrance.

Weight, well-adapted to motion through the air, helps the flier not only to speed—it helps him to steer. The weak-flying insects, as the wood-white butterfly and the carpet moths, cannot drive a straight course because, for one thing, they have not the stability that weight gives. As artificial flight progresses weight will not long remain the hindrance it is to-day.

THE BIRD BUTTERFLY

Easily is Iris, the purple emperor, supreme over all English butterflies! In the strength and ease of his flight, in the shot splendour of his wings, he has no rival. I have been looking for the emperor for seasons past in the New Forest and elsewhere, but I looked in vain till lately. On August 10, however, I had one glimpse of a large butterfly moving high up and quickly between two tall oaks at a spot where I often used to see purple emperors. From its flight and position I was almost satisfied it must be an emperor. The silver-washed fritil-

laries were still out, but fritillaries rarely mount as high as the top of a lofty oak, and I knew, from the glimpse I had, that this butterfly could not be a large white, for its flight was too strong for any white.

Two days later I returned to the place, and saw a purple emperor soaring and gliding in an open space amid a group of oaks.

The white admiral butterfly is lovely to watch, being so buoyant, so exquisite in grace ; whilst the fritillaries—silver-washed and high-brown—are dashing and impetuous ; and clouded yellow and light-clouded yellow butterflies are swift for their size, racing over the clover-head fields in August and September as fast as a man runs. But the emperor, in the height at which it cuts and glides through the air, and in the length and power of those proud glides even when a brisk wind stirs, is more bird than butterfly. I had a good view of it whilst it floated on a level with the oak tops high over my head, now and then descending to settle and sun itself on an oak leaf near the middle of one of the trees. It did not spire up and up, as it sometimes will ; but I am sure it could have done so even in the wind that was swinging the upper boughs of the oak. As it lay flat on the air during one of its long glides right over my head, I could see the white bands across the underside of the wings, and the brown colour of those wings, but not the shot blue or purple film, for this is only on the upper sides.

The gliding and sailing action of the purple em-

peror is the glory of its flight, but this is not achieved without some ordinary butterfly effort, including an odd little jerk before each glide, which is seen, too, in the flight of the white admiral butterfly. The jerky action seems to me the same in both, but perhaps a little more pronounced in the emperor. Here the likeness ends.

The flight of the emperor and the style in which he sails about the tree tops in the breeze is more powerful than the admiral's way. This emperor was rather small—the size of the males varies somewhat—but I adjudged that, though it was near mid-August, he was still in fine condition. Once, when he came down from the tree tops and sailed over me, I could see that his wings were not spoilt in outline, whereas most of the silver-washed fritillaries dashing about the brambles were frayed in their hind wings.

The place where my emperor sailed is a typical haunt of this kind. He has—I imagine he generally has—a host of small companions that disport themselves around, the purple hairstreaks. They begin to appear about the oak in June or early July, and linger till mid-September. In hot weather they are moving about the oak trees most of the morning and afternoon, but a bright evening seems their favourite time for frolic and fight. After a dull day, I have seen them sport around the oaks as late as six o'clock in the evening. Settling on an oak leaf the purple hairstreak will turn its back to the sun and, opening wide its wings, lay them flat

and fall into a sun rapture. But this ecstasy is instantly ended when another hairstreak flies within a foot or so of the chosen leaf. Then the rapt one is up and chasing its rival or fellow, and the two gay butterflies will twirl round and round each other as they pass quickly across the tree.

Often the giddy twirl will be doubled and quadrupled, other rapt sun-worshippers being drawn off their leaves to join in the fun. The twirl, I think, is very often an act of courtship, as it is among the silver-washed fritillaries at midday; but probably there is also a good deal of anger and fighting as well as gallantry in the bouts and chases around the oak trees in August. The flight of these small, smart butterflies is quick, but it cannot avail against a brisk breeze as can the purple emperor's, and the hairstreaks keep chiefly to their perches and sleep in high wind.

THE BUTTERFLY OF PARADISE

It is one of Nature's paradoxes to achieve utility through ornament. There has been a school of thought in Europe of late years inclined to discount Darwin's sexual selection. I cannot understand this reaction. There is doubtless a vast deal of beauty in the natural world which is no more the sign or result of sexual selection than is an English or Italian gallery of works of art. I have often urged this. Darwin acknowledged that there was beauty of colour and form which was quite inessential to the work of evolution. But I cannot understand how

any one can now doubt that the lovely colouring, the pennants and the lyres of birds are not the work of sexual selection, or the refined and fantastic beauties of butterflies and other insects. Denying sexual selection in these, we must either fall back on the old notion that they are fashioned expressly for the pleasure of human beings, or we must say there is no explaining them.

In a sale of a great collection of butterflies, I saw three sets of exotic butterflies in which insect ornament was seen at its finest. One set included different species of the Morpho butterflies, such as Menelaus, Hercules and Cypris. The chief feature of this class is the light shot iris which covers all the upper sides of the wings. It is colour produced just as is that on the wings of our own purple emperor butterfly, save that the blue is lighter and more vivid—one need not view the Morpho butterfly so much at a particular angle to catch the colour as with the emperor. It is interference colour. It has nothing to do with pigment, but is made by an arrangement of the scales of the wing which splits up the light rays.

The splendour of these Morpho butterflies is almost wholly in the colour. But it is not so with the wondrous bird-winged butterflies. Two of these surpass all others I have seen in collections—Ornithopteron victorioe and Ornithopteron paradiseum. The male bird-winged butterfly of paradise has a swallow-tail, ending in a tip almost as fine as an insect's antenna. These bird-winged butterflies

have exquisite colour and pattern, but it is in the cut of the wings that ornament is most notable. Even in a cork box they are lovely things; what must they be when flying in the forests and swamps of the Tropics! The butterfly of paradise has never been described, thousands of these fine patterned painted butterflies have never been described—for you cannot describe from the dead and dry insects.

Have, indeed, the birds of paradise and those winged gems the humming birds ever been truly described? I turn to Gould's work on them—a noble and sincere work of its kind—but can find only fragments about the life history of many of these birds. We have not more than the Latin names of hundreds of them—and the name is the least thing about the humming bird or a butterfly of paradise.

It is the same with the humming bird as with many bird-winged butterflies—the colour adornment is chiefly secured not by pigment, but by the shot dyes. The effect is more splendid than any effect of pigment. In England the number of butterflies and moths and birds so adorned is small. The lapwing and the dove are among birds shot over with "a livelier iris" at the courting season, though now and then one of the warblers takes on a faint flush of it, and I have seen it on the wing of the clouded-yellow butterfly. Why are these iridescent glows so much more general in hot climes and among the birds and butterflies of the Tropics? I imagine

the cause is in the immense strength of the sun there: the interference colour, given strong light, is perhaps easier to produce, sooner produced, than the ordinary pigment for the scale of butterfly and the feather of bird. Also it is more effective—*a tour de couleur* indeed.

I doubt not these ornaments, whether of pigment or iridescence, have been worked up for utility—the survival of the fittest through beauty. Beauty is the bait. The female butterflies and birds have chosen from the finest liveried of their suitors, and the finest liveried have proved through the ages the fittest.

That has been the law for an unthinkable period of time. But there may well have been an overflow of the beauty by which sexual selection has done the work of evolution. Not an overflow in colour, for that branch of beauty seems to be all devoted to these ends of utility, but an overflow in another branch—the branch of song in birds. I have long felt that, though song in the main is to attract the female—a bait, like that of colour—a certain amount of it has overflowed into other channels. The winter, autumn and late summer singing of birds is often, I think, not sexual. The delicious little singing of the willow-warbler in August and September ere he leaves for Africa is not to attract the hen bird.

VI

HALF AWAKENED BIRDS

At daybreak on an early August morning there is nothing of the rapture of bird song that begins at this hour in May and June and early July. It seems that now, as at most times of year, the first to awake is the redbreast. I omit the skylark, for now it is mostly silent. In June it is the earliest of all, beginning at the first faint glimmer of dawn. Later, the blackbird is very early, the song thrush too; whilst—returning to early spring—the missel thrush now and then sings as if he were a night bird, like the sedge warbler and the nightingale. The missel thrush will sing in the moonlight.* The cuckoo at the zenith of May approaches the skylark as a very early singer. But, taking the year through, I doubt if any bird note at dawn is so constant and familiar as the faithful redbreast's sharp "it-it-it." It is not good often to be lying awake at this hour, yet something of rare virtue is in these prime notes of dawn.

In early August the next contribution is the long-drawn "chre-e-e-ee" of greenfinches. That lively

* I have never heard him singing then, but my friend, Ralph Hodgson, heard him singing in brilliant moonlight in April 1904, I think, at Weston, in Hampshire.

rattler the wren follows with its bubbling song of jollity. It matters little to the wren whether it has a nest or not. It enjoys the sound of its own voice—it is not humanising birds to say this.

But now I have added to my list of bird singers at the August dawn a performer new to me at this hour and month, and delightful. One morning in early August I heard, before the wren sang, some low little mutterings that sounded to me rather like the soliloquy of one of the warblers. Lesser whitethroats nested in the hedge opposite my window in May, and I thought this might be the male bird in song again after the flight of the young. The lesser whitethroat does sing sometimes in the low key after the young have flown. I went to the open window and looked for the singer; I would wish to sleep with window wide open through the year, and no curtains, the air rarely tasting so sweet as in the blind hours and in the grey of the dawn. The warbler could not be seen. I went back to bed, and the song began anew, and this time I knew it as a stolen passage from the wren which had now struck up.

The mysterious little musician sang again next morning, and though I never caught sight of him, I knew later it was a pied wagtail. He wakes quite as soon as the swallow in early August and sings as a swallow sings—on the roof. But the wagtail's song is quite different from the swallow's. It is much shorter and is not quick and babbled.

THE HOUSE MARTIN

The house martin has little of the swallow's fame, though he deserves so much of it. The first swallow of spring appeals to everybody: the first martin is overlooked. The gathering of the swallows in September for the autumn journey is a sight scarcely less signal than the swallow's coming in spring—but who ever thought to remark on the gathering of martins? The swallow is in the folk-lore of most, perhaps all, European nations; but if the house martin has a place at all in folk-lore, it is insignificant. From earliest times in England the swallow has ranked with the robin, the wren, the thrush. The swallow, too, is with us and other nations the typical instance of the migration of birds.

In literature, for one reference to the martin it would be easy to find a hundred to the swallow: Shakespeare's eave-haunting marlets, nice judges of a delicate air, is one of the very few familiar references to the bird. Yet the house martin is a much commoner bird in most English places than the swallow. He is worried by sparrows, but holds his own, and in most years is abundant in the villages and small towns. The house martin is not quite so lovely a bird as the swallow. He wants the perfect polish or sheen of plumage, and is without the rich brown of the swallow and those fine streamers to the tail. But, these apart, the house martin is the swallow's match. In spright and in flight he is the swallow's match. As nest

builder he surpasses the swallow; and in the sleepy streets of old English villages the black and white of the martins shooting to and fro between the eaves, their beautiful dip and curve, and their pleasant note, are charming.

The house martin has another feature entirely delightful. He sings much as the swallow sings; I do not know that I can distinguish between the two songs, for only lately have I listened to the music of the martin. He sings in a low sweet key, and the notes are packed close and quick together like the swallow's notes. He sings even whilst sitting in his nest in August with his mate. I have seen a bird by itself—the male blackcap—singing as he warmed the eggs, but I never before saw or heard of the male bird of any species singing whilst he sat in the nest with his mate.

GREEN LINNETS

Wordsworth found the green linnet "presiding genius" among the snow-white blossoms of the orchard or garden in May. I have always found him the presiding genius of birds in the August garden. But there our differences about the green linnet end. I agree with all else Wordsworth said in his lovely lyric. The green linnet is "a life, a presence in the air," a "brother of the dancing leaves," and he "pours forth his song in gushes." The green linnet or greenfinch has been undervalued by people who care for and write of birds. He is slighted. One of us has criticised his figure, another

his nest, a third his song. But his figure can only be called clumsy or bulky if contrasted with a goldfinch's which is so faery-fine, or a red linnet's, which is so sprightly and carried so upright and "peart."

The greenfinch is no model builder like the chaffinch or the goldfinch, the outside of the nest being often rather rude and formless, but the cup within is well rounded and softly lined. As to the statement that the greenfinch is a trifling or indifferent songster—I dispute it. True, the greenfinch is no songster if we are to measure his music simply as melody. But that is not the way we should appraise the songs of birds. Judged simply as music or melody, apart from the charm and beautiful ways and appearance of the singer itself, there is no bird's song that can stand the test well. Even the nightingale's song, or the blackcap's at its best, would be scarcely worth considering much, were it not for the nightingale and the blackcap. We ought to bear this in thought, if inclined to scorn the greenfinch's little lay.

The greenfinch has a drawn-out call, more or less a love-call, I should say, that can at times be a little monotonous—its "twee-er," over and over through late summer days. But its true song, though slight, is too pleasant and gentle to weary the ear. It is a song often sung, and it is short: I cannot syllable it even roughly, though it seems simple and is clearly uttered. I think it consists of three little passages, or call them words joined by a hyphen; a conversational, friendly little piping. I call

it pretty and petite, not poor, and many people, if they listen to green linnets much in August, will agree.

A long summer drought never silenced the greenfinch. The hottest hours of the hottest day in July silenced all the choir but him. But through the afternoons he sang on from the shelter—if he needed shelter—of the ilex or sycamore on the lawn; and he sang—and still sings through August—as if it was May and the mating time.

"Full-throated ease" does not fit this affable, companionable little garden bird, but his song is never fresher and livelier than now. He is in the form which the glowing chaffinch shows in the immense days of early June whilst the year is at its supreme period—the Fresh yet the Full. It is very much with the greenfinch as it is with the willow warbler; there is not a harsh note in his lay, though the quality of it is inferior to the willow warbler's.

The build of the greenfinch reminds one a little of the house sparrow. It lacks the refined finch lines, the shapeliness of the cock chaffinch, the delicacy of that dainty small finch of Southern Europe, the serin. But in his wild state the cock greenfinch is finely dressed. Even in winter, flocking in the hedgerows with a sparrow mob, he is boldly coloured; and in August he is one of the brightest of our small birds in woodpecker green and gold. It is a mistake to overlook greenfinches. They sing on the days when bird song is scarcest, and, like the yellowhammers, nesting late in the

season, they keep up the idea of spring till near the end of summer.

THE ANIMAL MIND

The dead level of intelligence among wild creatures has long impressed me. The wisdom or understanding of one individual in the species seems to be on exactly the same level as the wisdom of other individuals in the species. What one song thrush knows and can do, all song thrushes know and can do, whether the action or knowledge relates to food, shunning an enemy, or building a nest.

What one partridge can do to cover the retreat of its chicks by feigning to be hurt—assuming she does feign—every partridge will do if danger threatens.

No partridge, no song-thrush, no honey-bee, no spider, no caterpillar is wiser or less wise than another of its kind.

The chrysalid of many moths and butterflies that seems so utterly incapable of knowing or doing any wise thing, does most wonderfully clever, adroit deeds to guard itself. And what one chrysalid of a species of moth or butterfly does, every chrysalid of that species does.

All of a species are geniuses or all are mediocrists.

The plane of this intelligence within the species is always the same. There seem to be no stupid, no backward bees, spiders, thrushes, caterpillars, chrysalids—in the species.

Such is the impression I get by watching the

actions of wild creatures. Here and there one does seem to light on an exception—a bee or a bird is found doing something startlingly wise or unusual in bee or bird. A willow warbler, say, covers up her nest with bits of dead grass to shelter her young from the sun or from observation. Yet only watch long and close enough, and I suspect other birds of the same species may be found acting likewise.

The startling exception commonly turns out to be nothing but the rule of the species. Nature never takes a leap within the wild species watched. Of course it may be the leaps are too small for us to notice. Our senses may be over gross to mark the fine fluctuation, the minute, important difference between individual willow wrens, bees, spiders, caterpillars, chrysalids. Who indeed could set up to adjudicate between the intelligence in one house fly and the intelligence in another? The shepherd, it is said, sees differences between the sheep in his flock far too subtle for the eye and mind not devoted to sheep. In the same way, it might be argued, we sometimes crudely judge men and women; talk of the gross herd or mob as if one of its individuals were no greater and no meaner than another, whereas, to a deep thinker and judge of character there is no common herd and no average man or woman, infinite variations and distinctions in mind and character existing in any crowd of human beings, whether of rich or poor, high class or so-called vulgar.

So we know there is no dead level of mind and

character among human beings, despite appearances; and may it not be the same with bees and birds and beasts of all kinds, despite appearances? I quite agree this would be a reasonable line to take, for if we are easily deceived watching human beings, how much more easily may we be deceived watching wild creatures, in which the mental variations and distinctions are obscurer to us, more minute?

I confess that as a rule I have only been able to see a general level of intelligence in the species, an intelligence spread impartially among all the individuals of the species—a "faultily faultless" level. But this level may only seem to be; and it may be that, if I could make a very long and close and something like a microscopic study of willow warblers, I should find after all one individual of this species, despite appearances, does differ in intelligence and other points from another individual, just as men and women in a common crowd really differ, and—so the shepherd tells us—as the "silly sheep" in a pen differ.

Though the general habits of many birds, beasts, insects, and fishes have been studied and described, habits of food migration, hibernation, and rearing their young, the working of the animal's mind, its ways of reason or of instinct, have rarely been worked out with precision. The honey-bee is an exception; so are some of the wild bees and wasps, for Huber and Fabre have written the intellectual side of the lives of these insects. But there has never been a Huber or Fabre for even one species

of bird, beast or fish ; and, until we have something like an exact account of this side of each typical wild creature, it must be very hard to decide whether or not " the lower animals " act through a mind or reasoning power like ours.

Two animals which, I am sure, are worth very close study are the weasel and the stoat. For years past I have had letters from people in all parts of England describing the clever or cunning ways of these creatures. Besides, keepers and other observers have given me their experiences in the same matter. Some time ago a great man of letters wrote to me that he had seen a weasel kittening about with a bit of rabbit's fur in order to " amuse " some small birds in a hedge. " It was a devilish spectacle. The little fiend played pat-ball with the fur, rolled and jumped and turned head over heels, and the birds cheeped feebly at the game." This weasel game is known to many people, though the bit of rabbit fur for a ball is new. The idea is that the weasel performs thus to fascinate the spectators or put them off their guard, so that he may get within striking distance of one of them. Whether this is the design or not, I think it clear the habit is common to the whole race of weasels. If it be intelligence, it is intelligence of the dead-level kind, which we find in the bee and the ant. One weasel's device is every weasel's device.

MARSH TITMICE

If the redstart excels in beauty, the marsh titmouse excels in vivacity; surely in this no titmouse can outshine the marsh titmouse, and few English birds can equal him. He is always brisk and confident and nimble; and though on the alert if one intrudes too near him—far alerter than the gold-crowned wren, the redpoll, or the long-tailed titmouse—he will allow one to sit or approach very near his haunt.

Marsh titmice are far from rare. The cole titmouse is more abundant than he is in most parts of England, but it is wrong to think the marsh titmouse is scarce or local. In wooded places he is a familiar bird to those who know him well and can recognise his notes. What a variety of notes the marsh titmouse has! Put together, they would form quite a song, though taken separately no note or phrase of the bird is so songlike and musical as the bell notes of the great titmouse in early spring.*

Woods, lanes, field hedgerows, willowy riversides, and commons alike suit the marsh titmouse; and often he visits the gardens, too, though I have not known him nest there, like the cole titmouse and the blue and the great. Beech mast and sunflower seeds are sure to draw the marsh titmouse, but there are many other courses on his menu; small berries

* This year (1913) I heard the whetstone—though not the sweet bell—notes of the great titmouse just outside my Sussex cottage between dark and dawn on January 5th.

in autumn, and, throughout winter, innumerable kinds of tiny insect grubs and chrysalids found in the chinks of bark on the oak and other trees. I have seen the marsh titmouse in the chestnut woods of Surrey feeding on thistle seeds. In a clearing in a wood under Hindhead a family of marsh titmice, young and parents, came within a few yards of me into some chestnut shoots, and one of them flitted to the head of a spear thistle in seed. He plucked a few seeds, and taking them in his claw, parrot-wise, stripped the down from the seed as deftly as the goldfinch—though the goldfinch need not leave the thistle-head, whereas the marsh titmouse works more at his ease on a twig of chestnut to which he carries his seed.

The little scene of the marsh titmouse and the spear thistle is soon done. Thistle seed is but a change of diet, and the members of the party, calling briskly to one another, are off in a few moments to the higher underwood and trees, where they can still find plenty of insect food—it is only a great sunflower in seed in autumn or a great find of beech-nuts in winter that will keep the bird busy and intent for hours in the same spot.

It is easy to distinguish between the young and the old marsh titmice, for about the young there is something of that look of baby plumage which one notices in various small birds : it is the same in the young long-tailed titmice, though at the close of summer these have sometimes seemed to me prettier and brighter in their feathers than the old birds ; and

they look rather bigger, too, perhaps because their plumage does not as yet sit so smooth and sleek upon them as does that of their parents.

Common as the marsh titmouse is in most parts of the South of England that I know and in the Midlands, I have never met with him in London. I wonder whether he has ever been seen in the parks or gardens within London. The cole titmouse does visit London. I have heard and seen the bird in Chelsea, and I fancy that even lately a pair have been in the old Physick Gardens on the Chelsea Embankment, where there must be plenty of seed food for them. The blue titmouse I see in London, both in spring and autumn. The great titmouse visits London, though I cannot recall seeing him. But I have not heard of the marsh titmouse there. I dare say he is often seen and heard in Richmond Park and Wimbledon.

THE HARVEST SCENE

Writing on Nature rarely seems to me quite a happy occupation unless it can be done in the open air at the very scene or the haunt of the wild thing one tries to describe ; and of all times for writing out of doors none is better than an early September day. The afternoons from one till three o'clock are delicious, when there is sun and a breeze from the west or south-west. Then the oatfield set in high downs, with twenty miles of the gold, green and blue of an English harvest scene around us, is a great spot. I often notice severe criticisms of series of " beautiful

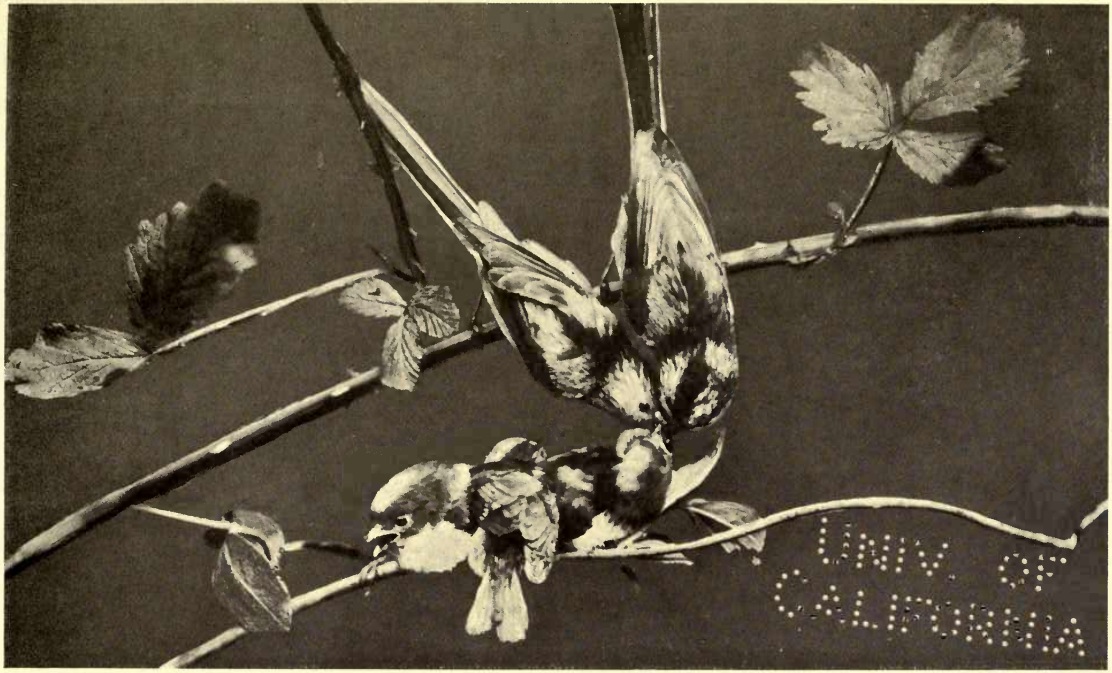
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Photo. A. J. R. Roberts

LONG-TAILED TITS FEEDING THEIR YOUNG

books" and "colour books" on the ground that the pictures in them are painted or reproduced in colours too high or glaring. Too glaring they may be; I doubt whether they are often too vivid and rich. Our homely scenes of harvest—how they burn with a wonderful intensity of colour! Save for the absence from it of burnish or glitter, the oatfield scene in England is a blazon of splendid colour.

The oat stubbles and the peaked shocks are straw gold or yellow or brown—I hardly know which of the three is the best description—of the richest hue of the kind I can imagine. The greens of harvest landscape as a whole are darkened, subdued greens verging here and there near the ground almost on blackness, but where they turn to blue and purple at two miles' distance, and so continue in varying shades to the twentieth mile, and to the ethereal horizon, they are richer even than the oatfield. The richness of this colour scene, whether in sunshine or shade, is its chief feature; and, after that, the perfect blend or harmony of its hues. This second feature of harvest scenery in English landscapes at the start of autumn delights and astonishes us anew season after season.

Not a colour is out of context. One colour blends into or emerges from the next at just the point it should. A flaw seems impossible, taking the landscape as a whole, though half the scene has been arranged and mixed by the hands of men and without the least regard for colour or form—I mean

the binding and piling up of all these thousands of acres of shocks of corn.

THE GLORIOUS SWIFT

Years ago I watched the swifts rushing to roost under the roof of a house in Leamington; that and the hover of the kestrel were my first studies of natural flight. I was staying with Miss A. E. Darwin, and I remember telling her how these uncanny fliers could dip down over the roof, and up to the very eaves where they slept, at thirty or forty miles an hour. They struck the wall with their glorious scythe wings thrust forward, and less than a moment later were out of sight under the eaves. I heard the sound of the stiff quills of their wings brushed smartly on the brickwork. Choosing a favourable spot, and watching swifts at roost time, one could see this feat of feathers any evening in July—for I cannot take gravely that charming story about the swifts sleeping high aloft in their beds of air. But in July there was little time to lose, for the swifts were ready to go south.

They spend a bare four months in England, and mostly they will be gone by September, the month when we often get sweet air and quiet skies, and when there must still be plenty of insect food. Why, indeed, the swift should go so soon, why he should be like the cuckoo, a "too quick despairer," we cannot tell; even if the higher air has little insect life in September, the lower is still full of it, as the swal-

lows and martins prove, and the swift often hawks low in June and July.

The swift was the theme of one of the best essays on natural flight I ever read, by Mr. A. E. Crawley. I have never doubted that the screw is the root secret of all natural flight since I read Pettigrew, and then observed for myself the build and contours of a wing and of a single shed feather of a pigeon. Mr. Crawley, too, insists on it. The bird, he says, screws its way through the air. It is a live auger; and he describes by word and diagram several screw feats of the swift. He touches on this very feat I saw at Leamington, the feat of rushing to roost at a high pace.

But the swift has a *tour d'aile* more splendid to see than this. Moving at a hundred miles an hour it can suddenly twist clean round and shoot itself at a fresh tangent! There are several kinds of English bats, I know, that can suddenly jerk themselves at a right angle, or at an acute angle even, on to a new aerial course; and in "The Airy Way" I wrote about one of them, a very juggler of flight flinging itself up and down, sideways, or almost backwards, whilst travelling at its best speed. But the best speed of the quickest English bat is nothing against the speed of the swift, and this sudden turn whilst moving at a tremendous speed of a hundred miles, as Mr. Crawley reckons it, is the climax.

Mr. Crawley has a fine phrase about the build of the swift. He speaks of its "stream-like con-

tours." The wings and the fish-like body answer to this description. Every thing has been sacrificed to speed in the swift, and yet nothing has been sacrificed—for the swift, though helpless on the earth, truly an unearthly creature, lives the full bird life. He has an immense zest in life; his wild frolics and rowdy evening parties point to that.

The swift is one of my wild creatures of "a fiery heart." He has been denied the earth and been given wholly to the air—but the earth is no loss to him.

That is the live swift. But look at the bird—or at what remains of it—when stuffed and set up in a case! Virtually nothing does remain: the fraction of the real swift in the skinned and set-up swift is worthless. After watching swifts in the air, it is something of a shock to see specimens in a museum. It is as if our eye had cheated us, for the stuffed swift looks such a miserable little bird. The words "grand" and "tremendous" and "glorious" seem ludicrous when used of so puny and drab a thing. The wing looks next to nothing; the whole form of the bird is without special significance. I felt this one day on going through the natural history museum at Marseilles and looking at the dead and dried swifts and Alpine swifts in one of the cases.

But the eye and imagination never really cheated me over the swift. The swift is all it seems or more than it seems. Only it must be alive to be real. The stuffed swift wants the two things which give the bird its glory—Life and Speed.

VII

A SEPTEMBER DAY

THE very early morning and the half-hour or so of sundown on September days are distinctive and most beautiful. There is a spell about the September daybreak—a spell entirely different from that of the high midsummer or of the marvellous fresh break of a riotous May morning.

When light comes through the window in these first autumn mornings, it brings no suggestion of a world created anew: that is peculiar to May and June, to the immense strength and surge of the year. Yet it is well to wake at the waking of a September day. In place of the riot and splendid rush and energy of the great *making* months is perfect serenity. In woody spots the voice of these September mornings is ring doves. They begin as early as any bird. Sometimes the tawny owl's grand, rollicking call will go on through the greater part of the night, so that the ring doves appear to succeed the owls with scarcely a pause between the two. The wren follows fast the ring dove. The wren, indeed, is in something like full song again. He paused in July—if he paused at all—but now again wrens are lively as ever. Wherever we go in the south of England we meet with these very

volatile little birds; but, though I thought I knew their habits well, I did not know till lately that they take dust baths in the high road like house sparrows and a few other birds. I know now that they do, for I came upon one lying down on a dusty, flint-made road, and bathing there with great, tiny zest!

The half-hour or so at sundown after a bright September day is now often sublimed. It is the time which cannot well be described as quite day or quite dusk. It is atween the two.

This half-hour is well known to all who study light effects. Lights are struck across the woods and fields at this time that are seen and enjoyed at no other moment in the day. There is a gold yellow sunset perhaps, and the west is dabbled with bright red patches of cloud-fleece, and the southern sky may be steeped in a pink haze or smokiness: but, apart from the sky, bright colour plays a small part or no part in this scene.

It is the crosslights and the alternations of light and shade that are so choice. They belong wholly to this one short phase of day. Nothing of the kind is looked for in the corresponding period between dusk and full light at dawn: then a certain sombre greyness is the feature of the atmosphere, and there are none of the crosslights and shades of the half hour at eve.

During this phase, as through the entire September day in large woods, the ring dove's earnest note goes on. Save for the lesser strains of redbreast

and wren, the ring doves now have the woods to themselves in the matter of music. They are still calling between seven and eight o'clock, and the latest ring dove has not ended when the stimulating shout of tawny owls breaks forth. The turtle dove's note almost drowned the ring dove's in the heat of July afternoons. At dusk the nightjars churned in the hush of a haunted hour. But both those vibrant voices are stilled now; the ring dove has no rival by day or dusk. The insistent note, always in the same key, is a monotony; yet it is never monotonous. There are bird notes and songs that tend to weary and even annoy. Sparrows, early in the summer morning, in the ivy, are hateful. The cuckoo now and then in May is too much: it may even strike one as a sort of mocking bird.

The ring dove never offends like the cuckoo. Its note is soothing, even when it falls on the ear of a despairer of sleep. I think there is some anodyne in doves.

THE STARLINGS

One September evening I saw the starlings going to roost in the large plane trees at the south-east corner of St. James's Park. This has been a regular sleeping-place of theirs for years, but I think their number is growing larger. On the evening I watched them by the lake, they seemed to come from two quarters. I saw no starlings fly in from south or east, but parties large and small poured in for half an hour from the north and

from the west. The western parties may have been coming from the Buckingham Palace Gardens and from Hyde Park and Kensington Gardens. Those from the north struck right across Pall Mall. A year or two ago I saw starlings pouring into the park along just the same line. I watched for only about half an hour, but, by the seething sounds in many of the trees at the water when I arrived, I know they must have been coming in some time before; and when I left, at a quarter past five, the inrush had not ended. It is hard to get a true notion of numbers in a bird crowd like this, but there must have been many thousands in the trees when I left. I counted some small parties where counting was possible. A party of eighteen came over; then came odd birds, two or three at a time, or single starlings; then another small party of thirteen; directly afterwards one of twenty. There was a pause of a few moments, and then one of the larger parties, impossible to estimate, swept by. This was the western line, and all the time starlings were coming in from the north.

The northern parties were sometimes distinctly large: a hundred birds perhaps in a bunch; three hundred or so in quite a crowd. These birds coming from the north would stop suddenly after crossing the water, when they appeared to drop down into the trees on the southern side like a shower of skurrying autumn leaves in high wind. It looked at a few hundred yards' distance as if they were tumbling anyhow into the planes.

Watching the western line more closely, I saw that many of the birds, as they approached their roosting trees, chased each other in the quick wanton way common to various flocked birds in autumn and winter.

These London starlings I have seen go through none of the regular starling drill we see in starlings elsewhere; they sport and wanton in the air in an erratic way. The trees are alive with starlings; their extraordinary simmer can be heard at some distance. Not a bird of all that host, it seems, is silent for a minute. Birds in the mass near or at their final-roosting spot are full of sound; so are detached birds that have not yet found their right tree and perch. The note cannot be uttered or written down. Heard in the mass it is not unpleasant; but when it comes from the detached starlings it is almost bat-shrill.

SUSSEX

My diary of birds and their setting has been written from many places; from the Midlands, sometimes from Cornwall, Yorkshire, Scotland, Derbyshire, Kent, Surrey, and the Isle of Wight; and from the land of chalk hills and chalk streams. It will often be written now, I expect, from Sussex. Though not on the chalk, I see a great line of chalk—the grey Brighton downs sixteen or seventeen miles away on the horizon to the west, with Chanctonbury Ring just appearing through the far, faint mist. This is a grand bit of England, too, I can well

understand, with its forests—fragments, I suppose, of the old, great Andredsweald—and with deep ravines or gulleys, and with its fold upon fold of wooded hill. Autumn unmistakably has begun to touch it all. I saw the first scene of autumn and felt its touch one evening when a mist, which strikes one as quite different from any mist of summer, spread over all the near hills and woods. Arcturus, that great star, was low down near the horizon an hour or two after this first autumn mist was lost in darkness; it bickers when in that position with most splendid colours, whilst Mars, on the other side of the sky, burns dull red.

THE STARLING "CHARM"

I have had another chance of watching the crowd of roosting starlings in the south-east corner of St. James's Park, and of listening to their strange evening "charm" or their simmer. The birds do not sleep, I think, in the large planes in the corner of the park; they assemble there at dusk, and finally drop down to roost in the wooded islet. When I reached the spot, most if not all of the parties were already gathered in about a dozen planes, and the "charm" was loud and unceasing. There was not the slightest pause or diminution in the sound whilst I was there. Many people sit and walk under these planes whilst the sound is going on, and yet do not seem in the least conscious of it. Thousands of birds are above their heads, every bird singing this roost song, and the men and women immediately beneath do not

look up, and do not know that an immense crowd of birds is above them! People constantly stop and look at the ducks on the lake near by; they talk to each other about these fowl, and clearly are interested. They do not suspect the presence of thousands of starlings. Perhaps if they are conscious of the concert above, they attribute it to sparrows; or they mistake it for the sound of wind among the large plane tree leaves. Indeed, if you told one of the passers-by to look up and see the starlings, he would imagine you were fooling him; for in truth, once the starlings have all come in from the west and the north and are settled on the trees, they are quite hard to see. They settle on the tops of the trees, rarely coming down to the lower branches, and are so mixed up among the large leaves, which are now dark green—very dark green by five o'clock on a September afternoon—that it is not easy to pick them out. I looked up into several trees alive with starlings, and could only distinguish a few birds, though the light had scarcely begun to fail.

The roost song is like the sound of some machine driven by steam. It may even resemble the loud hiss of a steam engine. This concert is all chorus. No individual performer can make him or herself heard—for I doubt not the sound is common to both starling sexes.

As we listen to the chorus and watch the parties flocking in, and the erratic, jerky flight of many as they reach their goal, it occurs to us, are there not phases, emotions, in the lives of these wild crea-

tures of which we know absolutely nothing? May not some meaning attach to this starling scene utterly hidden from human intelligence?

Sexual selection and natural selection are mighty terms to conjure with. We cannot do without them; we must all believe in them, more or less. But a performance such as this seems to us —at least whilst we watch it at the approach of dusk—outside the range of these grand theories and terms. "Veil after veil shall lift" before the searcher who searches through Evolution; but may not veil after veil yet remain to baffle him?

I wrote of two distinct lines of birds hurrying in —one from the north, the other from the west. I have since heard from an observer who says that from a window in Kensington Park Road he has watched the western line for six or seven years past. The flocks "passed townward in the evenings, sometimes in dozens, sometimes in hundreds. Evidently they flew in from the country. They were at about a hundred feet from the ground, and always moved across the back gardens. A few would break off at this point and go towards Holland Park, the trees of which I can see from the window. The main stream kept on towards Kensington Gardens, where there are large roosting parties. Occasionally there would be a few finches among them. In recent years this migration has gone on, more or less, all the year, but is heaviest in autumn and winter. It would seem that there are now so many of these birds in London that the food supply is not enough

for all, and that they fly to the country to feed, returning to London and safety to roost." He added that for some years he fed these birds throughout the year, and, as a rule, would have forty or fifty a day coming down. They even alit on the window-sills. I doubt not he is right in thinking the starlings are chiefly London-bred birds, and that they come in at night for safe roosting places. Curious that starlings should come to sleep in London—near the heart of London—for quiet and seclusion!

THE WREN

The real wood wren is not that shapely, delicate leaf warbler to which we often give the name: it is the brown wren, the winsome little bird which by the village folk is so well called—though why one might find it hard to say—cutty or juggy wren. The wren thrives almost anywhere in England. It is a frequenter of neighbourhoods, a frequenter of solitudes: reminding me in this very much of the redbreasts of autumn and winter which haunt our gardens, and these seem naturally garden birds; and haunt the most lonely lanes among the wild hills and windy beech woods on the remote sides and summits of downs, and these seem naturally birds of lonely remote spots.

Wrens live year in and year out about cottage gardens, castle gardens, the trimmed hedges of the most beaten highways, the old untrimmed hedges of deep-rutted farm by-roads along which scarcely a

man a day, sometimes not a man a week, passes. It seems not to matter to the wren where he lives or nests. He nests in ivied walls, and, if we watched wrens only about old houses, we should think that this was his regular nesting spot. But wrens that live among banks and ditches nest in banks and ditches; and wrens that live about thatched cottages and cowsheds nest in the roofs or under the roofs or in stacks of faggots piled up for firing. If the wren chances to live in fields and field corners where there are hayricks, he makes, or finds already made, a little hollow in the side of the rick, and he nests there. One can safely write *he*, for quite as often as not—at the beginning of spring more often than not—it is the cock wren, not the hen, that is nest-making.

The wren is a bird of dry places, where are no springs at the surface, and where well-borers have to pierce hundreds of feet deep to find water. The wren can find plenty of food in the driest of places. Yet whenever I go among streams I find the wren at once, and so at home that he seems to me a water bird. Among the Perthshire streams I found the wren common at the end of summer. At the same season I find the wren at home deep down among the streams that purl and simmer through the little ravines of North Yorkshire; yet he was on the heights above, even at the edge of the moors. At the edge of the sea I often find him. As for heaths and commons, where there is plenty of scrub and bracken tangle, the wren can scarcely be absent. There is a particular—and

wondrous—type of wren's nest which I associate largely (though not entirely) with such places; I mean the nest compact of bits of dead bracken hung somehow in ruined masses of dead bracken. I know such commons wherein every large hassock or thicket seems to harbour a nesting wren in spring and summer.

The presence or absence of men and their works and buildings seems not to matter at all to wrens. There are other birds of which the same is true, blackbirds, song-thrushes, redbreasts even; but hardly to the same extent. There is one spot, however, where I have long watched the wren with special interest—the great wood. Most of our English birds are roamers at some time in the year. Besides the regular migrants, as the warblers, there are many partial migrants which change their haunt once in the season. There is no place which shows this better than a large wood. The song-thrushes, which are found throughout the wood in spring and early summer, disappear in late summer and early autumn. It is not only that we do not hear them sing at these seasons—they are not there to sing. I have satisfied myself of this in more than one large, quiet wood. Of the blackbirds I am not so sure, but I believe they thin in numbers at the close of summer, going out into the hedgerows and elsewhere. At the beginning of September I find scarcely any birds in the large wood but ring doves and wrens. Thrushes and missel-thrushes are clean gone; the very jays are scarce. Yellow-ham-

mers and finches too are gone, save for a straggler here and there.

But the wrens are in the places where I find them in the spring and mid-summer, and where they will be through all the winter. High underwood of hazel, oak and ash stem twelve or fourteen years' growth, cut last winter, is laid on the ground in "lans." Here the wattle hurdler works through the spring and summer. These lans are favourite nesting spots in spring for blackbirds and song thrushes. They have left the place ere now; but the wrens have not left the lans since the wood was felled, nearly a year ago. All day they creep in and out among the lans and flit from one lan to another.

In all weathers and lights the wrens will be singing and uttering that note, call-note or protest, which is like the clicking of tiny wheelwork. The brightest of woodland sprites is the wren, unlike any other in England. He is full of merits—form, plumage, carriage, call-note, nest-building, and lively song at all seasons except July and a week or so of August; but perhaps his chief merit is that while all other birds are migrating or shifting their ground for a time, he never migrates or shifts. An acre of ground serves him a lifetime with food, shelter, nesting and singing quarters.

WILD WATERS

The moorland and mountain streams attract me in early autumn, when the leaves of the rowan are turn-

ing red and yellow. There are two or three birds by such waters I have watched at this time, but never grown quite familiar with, perhaps because their nests are unknown to me. There is the dipper, which reminds me closely of no other English bird, though in its ducking habit, and its low flight from stone to stone along the brawling brook, it might be likened to some gigantic wren. It is somewhat wren-like, too, in restlessness. I have seen the dipper wading in the shallows among the stones: where the grey wagtail scarcely goes over its dainty feet—indeed, only ventures on the moist stones amid the spray of the tiny waterfalls and cascades—the dipper wades an inch deep in search of food: this as well as boldly diving right under the water in deeper spots. Another bird I have seen something of about this time in the wild streams is the ring ouzel. I have seen it eagerly taking cherries in a moorland garden, and its excited note and bustling flight when interrupted reminded me of the missel-thrush among the yewberries in October.

THE KNOWING PLANT

No wild plant attracts me more than that persistent, that deliberate twiner, black bryony of the hedge-rows. I found it growing in great strength in March, 1912, on the Atlas Mountains in North Africa. I know it for a very common plant on the light chalk-lands, and I find that it is, if anything, still commoner on the heavy clays of Sussex. Its leaf and serpentine stem are changing colour in October.

Some of the leaves are stained with black, one of the terrible colours of fading things in the autumn, since in it we can find no beauty, only decay. The maple of the hedgerows sometimes turns from green to black almost in autumn, and there are other hedgerow trees that shrivel into ugly black. That and the mildew grey of oak underwood at this season are among the evil-looking touches of a time that on the whole burns with beauty. But not all bryony plants turn thus. Here and there are bryony leaves richly bronzed in early October. Most often the green turns pale yellow, and so effective is this colour just before the general heightening of autumn that at dusk—and even so late as between six and seven o'clock—the large leaves in places light up the dusky hedgerows. You can pick out a bryony leaf when the rest of the hedgerow foliage at this hour is an obscure, confused mass.

Among these yellowing and blackening bryony leaves we see stems with leaves still unstained green; but these, too, declare autumn. We look at the cotton-fine end of the climber, and see at once it has shrivelled to nothing. No frost has nipped its delicate tip, yet it has perished there. Bryony has come to recognise by the beginning of October that the game of green life is played out. So millions of bryony shoots that started in summer later than their fellows come to nothing; they climbed high up the hedgerow, and put out a long succession of leaves tapering and tapering in size to the tip, and were destined never to fruit or flower.

To come to fruit bryony needs in England something like six months. Even in October the large berries are scarcely full red on many stems, whilst on others they are orange or even the shining green.

Bryony was the plant I wrote of as suggesting, by its habit of growth, a sort of "animal intelligence"; and I never can see it feeling its way about the air for support without being struck by this feature. Some remarks I made on bryony's early spring adventure half across the lane in search of support, and back again when it found none there, brought me a letter from Mrs. Chesterman, of Tintagel, who is curiously versed in the folklore of English plants. Many of us have dabbled a little in Gerarde and Culpepper, but she has made a minute study of that legendry, finding much of wisdom in all the seeming folly. "Why do you say," she asks, "that our forefathers would have scouted the bare idea of 'mind' in a plant? The ancient conjecture, or I might say 'faith' on that point, seems the most positive thing in their writings. The vine, for instance, was thought to have the sense of smelling and wonderfully to scent any odours—'if shee be neare to radish shee will turn away and withdraw herself backward, as if shee could not abide their strong breath, but utterly abhored it as her very enemy.' Here is the ancient view of the 'mysterious intelligence' in some climbers of which you have written. There are passages in your 'Green World' which I could set side by side with writing two thousand years old. I suppose there

is something that the naturalist knows in Nature which was truth in the beginning when ' Jove filled all things with himself.' It cannot be called ' old ' or ' new.' It is, under all mist and fog, so truly that which is." The passage which Mrs. Chesterman quotes from is in a chapter called, " The Green World," in " Life and Sport of Hampshire." But by " forefathers " I meant forefathers of the eighteenth century and the greater part of the nineteenth. They had shed the old strange legendry of plants, and taken instead an unimaginative view. A plant to them was utterly mindless : they drew a hard and fast line between plants and animals. Whereas their forefathers went to the other extreme, humanising plants. I think that to-day we are on safer and saner lines than the unimaginative eighteenth century or the very imaginative ancients. The ancients' view of plants reminds one somewhat of Beardsley's drawings—so bizarre, so beautiful. It was a elfland of plants with them.

THE CHEERFUL WAGTAIL

The pied wagtail, I find, is a foul as well as fair weather singer. Fine rain, driven sideways by a wind that scarcely dropped its voice once the whole morning, blotted out the landscape, and all was drenched and cold and wretched-looking. Yet the pied wagtails on the lawn of the old house were full of spright, calling to their mates or companions constantly and singing between ten o'clock and midday. This lawn is one of the fair stretches of turf

which the pied wagtail revels in. There are three or four acres of it, quite free of weed and close-shorn from April to November. Through the summer it is thick with blackbirds and thrushes from dawn till dark; and they seem in June, when the young are fledged, almost as a flock scattered over it. In autumn for a month or so, these birds spend part of the day in the hawthorn bushes in the park, where the berries are ripe. But the pied wagtails are about the lawn through most of the day.

I heard the wagtail first calling sharply, and then I thought I caught a snatch of his song as I breakfasted. Half an hour later I saw one singing ten yards away. The song is distinctly sweet, but most of it is in a key so low that one has to be quite near the bird to find the merit. I have said it reminds me of the song of the swallow, but hearing it again, and at closer quarters, I am struck with the warbler strain in it. It is quite of that genre, and a bit of it now and then might easily pass for the little undersong of the lesser whitethroat in June.

This wagtail sang as he tripped along the rim of a large earthenware vase on the lawn. We must *see* the wagtail sing to know the merit of the song. The lively motions of the singer, his frisky little flights now and again from the singing perch to the gravel path and back are part of the thing. Then his plumage—renewed, I suppose, by an early autumn or late summer moult—is fresh and neat. His throat and breast suggest a black cravat and white shirt-front. I was near enough to see that, during each

short song of seven to ten seconds, the throat feathers would ruffle out like those of thrush or warbler. Finally, when the sharp call-notes and the low melody are over for a while, comes that clear, quick, decided flight of the wagtail; flight in bold, sweeping bounds, each bound as long as that of the green woodpecker.

SUMMER THRUSH AND AUTUMN

I have often felt that the best song of an English bird throughout the season is the first few bars of the earliest autumn thrush. There has seemed to me to be in these random notes a sweetness surpassing even that of the blackbird of March or the willow warbler of April, when the leaf is beginning to green. I heard the song-thrush on October 17. I heard it one year as early as the close of September, but it is about the middle of October one expects it, and this particular bird—the early autumn thrush—is a fair rather than a foul weather songster. The bird I heard lately sang its few bars from a fruit tree in the garden. The sun was shining genially, and there was a very pleasant feeling of autumn everywhere. A few bars, and a quarrelsome rival came on the scene, and my bird had ended for that day at least.

For pure musical quality, the song is inferior to that of a thousand thrushes which were singing a great part of the day in June, and were still to be heard—though less often—early in July; yet we set more store by it, and listen more keenly.

What is the meaning of this special charm in the first thrush of the autumn? It seems to be related to this: When the thrushes' song, growing less each day till they ceased in July, one felt that the vigour of the year was done—the great making part of the summer over. In a way, part of July and the whole of August and September are an exhausted period of the year. This is true of the song of birds as it is of life and work in the green world. There comes a day in July when we must recognise that the greatest acts and scenes in the drama of the summer are over. After that it is darkening leaf, wilted stem; and in bird life it is largely silence except for the note of ring doves, and, a little later, the pensive strain of redbreasts. It is the decay of the year's vigour. Now the song-thrush, striking up in October after a silence of three months, touches another chord. There is nothing used up or played out in these notes of a wonderful sweetness! This is a new song by a bird that sings more than any other bird through the vigour of the year, and through many of the months that lead up to that vigour. With the closing of the thrush song, the vigour seemed over; with the striking up of the thrush again in autumn Nature seemed once more preparing for a fresh year of it.

VIII

A YEAR OF BIRDS

WITH the going of the swallows and martins and the coming of the fieldfares and redwings, it may be said we end and begin a fresh year of English birds. I should say mid-October, taking one season with another, is the time when the bulk of the swallows and martins leave, and the time when the first large parties of the winter birds reach England. True, a few days or a week after we have given up the swallows and martins, parties of them may reappear one bright morning and hawk over the fields and by the streams as if the spur of migration were not yet urging them south. This will happen through October, whilst a pair or two will mysteriously reappear at their old haunts even in November once or twice—in 1909, for example, on the South Coast—I have seen a pair actually coming in from the sea then. But by then the bulk of them has been in Africa or the South of Europe for weeks.

A year of English birds in its signal features recurring season after season is a good thing to think over in October, whether we are bent on recalling what has passed or are reckoning on what is to come. Of course, the bird diary varies somewhat, both in its events and dates, according to the character of

country in which it is kept. A year of birds in a moorland district in the West or the North of England differs in many of its dates and incidents from a year of birds in a pasture or arable district in the Midlands or the South, and both differ from a year of birds on the sea coast and among the estuaries and harbours. But there are familiar features in the changing round of bird life through an English year that are common to most districts, such as the coming and going of the swallows and martins and redwings and fieldfares.

Looking back on a year of birds that is closing, I recall signal features which must have struck many people in the South of England and the Midlands. There is that low, rambling song, a kind of *talking* song of the starling in autumn. A few seasons ago, spending half of each week among the downs, I heard this starling music almost every morning, wet or fine. The best and the most of it might be over before midday, and in all it lasted only about an hour, but it was constant. It is common and constant in many English places.

People must often be pleasantly deceived by the starlings on a quiet September or October morning rendering some song thrush notes. Not that the starling is a mock thrush, a mere mimic; he is far better—he is of the best singing birds in his wild state. It is in a cage he is degenerate.

But the most signal feature of autumn bird life must always be the outburst of redbreast song. There seem to be two phases of redbreast song at

the fall. The first is early in September, on those very serene bright days when few trees have begun to show red or yellow leaves and the calm that comes after summer is felt everywhere. The redbreasts that mark that time are home-bred birds—the old birds of the year coming into full song again.

The second phase is when dripping woods and lanes are loud with redbreasts that have come in from Europe, as well as with our home birds; and this phase is often very notable through late October and far into November, when it really seems that the darker and drearier the day the livelier the host of competing robins.

Turning back in the season to the bird life in a bit of homely England—lanes and woods and plough and pasture farm lands in the South or Midlands: what are its outstanding features of the spring and summer? The song and the missel-thrushes have been heard on and off through late autumn and winter, so they are not especially marked in early spring. But the first song-thrush's nest can never be anything but a chief event in the chronicle of English birds. The best description of it I ever lit on is in an overlooked sonnet by John Clare, the ploughboy poet. Clare wrote much prosy verse which might well have died with the author; therein he was like Thomson of "The Seasons," and like Robert Bloomfield. But a few short poems he wrote—from the madhouse and in the fields—are rare and choice, and of these I like best his sonnet on the song-thrush's nest:—

"Her secret toil from day to day—
How true she warped the moss to form a nest,
And modelled it within with wood and clay,
And by and by, like heathbells gilt with dew,
There lay her shining eggs as bright as flowers."

The first thrush nest in March and the first thrush note in September or October have a fresh and exquisite pleasure for me.

* * * * * *

Then comes the fluting of the first blackbirds, and, a little later, the ripple of the chaffinch; and, after that, the surprising eve in April—wet and cold perhaps, but full of the sense of spring life—when suddenly a babel of song breaks out, flooding the air—thrushes, great tits, blackbirds, redbreasts, ring doves, chaffinches, and wrens, all mixed up and spoiling the effect of one another's music.

The first willow wren's song and the first chiff-chaff's notes a week later are scarcely less notable than the sound of the first cuckoo or the sight of the first swallow.

There follows the little space of time in May and the prime of June when when all green places are bubbling with bird life. After that the lull soon begins to be felt. Ear and eye are sensitive to the change by midsummer, whilst in July and August there are only a few signal features in the life of our common birds, and these few well spaced out. Four of them strike me season after season—the vibration of the turtle doves through the day; the vibration of the nightjars at dusk; the almost unceasing song of the greenfinches in August days;

and the intense note of the ring doves throughout the dying bloom and the silence at the close of summer in woodlands.

The first phase of the redbreast autumn song follows, and a little later the close of one bird year and the start of another.

THE BUTTERFLY YEAR

October ends a year of English butterflies as it ends a year of English birds—ends it with the splendour of the red admiral butterfly. But there is this great difference between the two endings; no sooner is a year of birds over in autumn than a fresh year begins; whereas, with butterflies, we must wait for the fresh season till the sulphur butterfly rouses from its six months of death-like trance to fly in the sun of that first mild day in March—day with "each minute sweeter than before."

Butterflies have almost the fame that birds have in allegory and fable. The idea of a butterfly, the thing beyond all things of the sun, has an almost elemental appeal for us. It is in English literature, has probably run through literature from the start, so that it seems rather strange that people are much less interested and less informed in the life and habits of butterflies than in those of birds. For one person who knows by name or by sight a common English butterfly, a thousand know a common bird; and, as for familiar wayside plants, they are known to people even better than are the birds. We are not quite so backward in butterflies,

it is true, as a few generations ago. Still we are unknowing in these lovely things. I could never find among English villagers, who know birds by name and sight and sound, more than two names for familiar butterflies.

Yet our butterflies, though they may want the splendid shot and dancing dyes and the size of tropical butterflies, are curious and beautiful. Butterfly life is harder to watch than bird life; a man needs more time, more patience to learn a new about the fritillary or the peacock butterfly than he needs for the study of a bird. The life is minuter, the motives, passions, habits of the butterfly are more subtle, hidden from outward view, than a bird's. Nor does a butterfly touch us as a bird touches us. It seems so non-human. The bird strikes us as more human in several ways than any other creature save the dog. Its song, vivacious or mournful, its bright affections, its outbursts of anger and grief, and often the confidence in human beings when it is treated kindly—these bring the bird far nearer to us than any other wild creature. The world of the bird is in some small degree explored, but the world of the butterfly is aloof, mysterious. The butterfly is a creature of the daytime, living in full light, yet we remain almost as much in the twilight about it as about the moth.

All this keeps many people from the study of butterflies. But much can be learned by a few seasons of watching. As to the way some birds will confide in human beings—so too will butterflies

and day-flying moths. A friend wrote to me asking had I ever heard of butterflies being kept as pets? She had a friend who delighted in "a flock of them kept in a large glass cage. She taught them to alight on her finger, which she first dipped in sugar and then held in the cage." It is easy to believe in tamed butterflies. I have stroked humming bird hawk moths on the wing; I found this easy one summer at Springvale, in the Isle of Wight, when large numbers of these insects spun round the fuchsias—

> "The poiséd moths thy hand caressed,
> Sip they not wines from fuchsias by the sea?"

I have stroked too, without alarming, such wary butterflies as the silver-washed fritillary and the red admiral. Some of the smaller butterflies are harder to touch, move one never so softly; I tried in vain in June to touch the little butterfly styled Duke of Burgundy fritillary*. I fancy, however, it only wants patience and constant practice to disarm the suspicions of most of the butterflies, even in the full light of the sun, when they are widest awake; if the sun is hid by heavy cloud, and it is cold or wet, one can touch any butterfly, for the heavy drug of sleep is on it.

The butterfly year opened in March with the awakened brimstone butterfly. There are three phases of the sulphur: first the March and early April

* But, since writing this, I have had the butterfly settle on my coat by the river, and I have touched him easily whilst the sun has been hid by clouds.

stage, a stage of a deep sleeper aroused; next, in June, the birth of the new sulphur from the chrysalid—the "antenatal tomb," as Shelley named it; finally, in September, the late summer hatch of the sulphurs, feeding upon sweetmeats from the wild basil and other dying flowers of summer against the long winter sleep. Thus the sulphur, like the common blue butterfly, repeats itself through the season, but the first of the several phases of the common blue is not that of the sleeper aroused, for no blue butterfly hibernates in the perfect or winged state. After the first phase of the sulphurs and of the small tortoiseshell butterfly comes the first new butterfly, the first actually hatched out in the year; this is the little azure or holly blue—holly because its caterpillar feeds on the plant, azure because it is sky-tinted. This blue is always the earliest of our butterflies to hatch from a chrysalid that has lain through the winter, though some say the orange-tip and the cabbage whites are as early as the azure. I know I find the azure sometimes in April, numbed by icy showers, whereas rarely does the orange-tip appear till May.

Here, then, are three signal events in the early part of the year of English butterflies—the awakened sulphurs and small tortoiseshells, the hatch of the azure blue, the hatch of the orange-tip. The third of these has long been for me the best event in the butterfly year. The orange-tip seems to pick its day in May or early June with unerring nicety. Orange-tip day is the perfection of English weather

made by shower and shine. It comes from the chrysalid on about the freshest, most delicious days in the year; and, on the very day it comes, the two pearl-bordered fritillaries appear in the coppices. Now and then one of these graceful little butterflies will appear much later in the year—I saw one on the Deeside moors in Scotland so late as mid-July one year—but the close of May is its true season; and the season too of the green hairstreak and the Duke of Burgundy fritillary in our South country coppices.

Later in July come most of the butterflies, the larger fritillaries and the white admiral, the blues (other than the azure), the meadow brown, the large heath, the small copper, and the purple emperor. Then, towards the close of summer, come the Vanessæ butterflies—peacocks and painted ladies and commas and large tortoiseshells; with the red admiral largely kept back for early autumn.

I have rarely watched any kind of English butterfly with care for even a day or two in the season without noticing something in its way of life that was new to me—something not in books. Indeed, very little is as yet in the books on butterflies save lists of the plants the caterpillars feed on and of the places where they may be seen. I could never find a word about their habits of turning their backs to the sun when they settle. It is a set habit with many kinds, if not with all, that sun themselves much. I made out a little list of those I had seen turning their backs thus while sunning on leaf

or on the ground, and lately I added to my list the purple hairstreak. The butterfly turns its back to the sun because, through the angle at which it sits, it can get more sun warmth. That is its ecstasy.

THE SECRET OF THE REDWING

The redwing well serves to show how very hard it is to reach the motive of migration. Here clearly is a bird which comes to us in autumn from Norway and Sweden and Eastern Europe to escape the starving winters. The redwing is a delicate thrush. It suffers from cold, or from the dearth of food which cold causes, sooner than the song-thrush and the missel-thrush; and sooner than the blackbird, which is the deftest of birds at finding food in frost time under the dead leaves.

Little flocks of redwings, joined by a few song-thrushes, fieldfares, and blackbirds, are seen in early winter in many pastures and open commons throughout England. A flock frequented the largest open space in Battersea Park and roosted in the shrubberies. Even some way off, when the light mark over the eye and the rich red flanks cannot be seen, it is sometimes easy to recognise the redwing through its wariness and its brilliant speed on the wing. The song thrush can fly quickly, but the redwing seems to be quicker. These smaller birds gather their speed almost at once: they seem not to depend on momentum for their pace so much as large fliers.

The redwing comes to us to escape the northern

winter. But this does not help us to solve the riddle of its migration. The first step in the piecing together of a puzzle is often child-simple; but soon we find it does not help us in our task. Why need the redwings, having come south and west in such numbers, leave in the spring to a bird? A redwing's food through autumn and winter in England is much the same as the food of song-thrushes and of blackbirds save that the redwing does not care as much as they for berries; and there is no reason to think that redwings could not rear their young in England. Yet it has not been proved that a single pair of redwings ever stayed through an English spring to make a nest and rear a brood. There have been stories of redwings nesting in England, but not one well proven.

It is the same with the fieldfare. Not a redwing or fieldfare has nested with us, though we see fieldfares in May, and now and then in June. Did migration allow it, there would be nothing to forbid the redwing staying through the spring and nesting in English woods, for there is nothing in our climate or food unsuited to it and its young.

I should say the redwing is at least as well suited to nest and rear its young in England as is the "American robin," which is also one of the thrushes. Yet, whereas the redwing will not nest with us, the American robin, only find it fitting quarters, will nest freely and bring off its young. But having done so the American robin disappears in the autumn and is seen no more—I am thinking of American

robins which have been brought to England and let out of their cages in the spring.

I do not think the experiment has been made, but if redwings were kept in an aviary in England for a year or two and then released in May or June, I doubt whether they would stay, as American robins will stay to nest. True, the American robin is said to be one of the most migratory of birds in the States, but I have never had the chance to watch it in its home. It can adapt itself to foreign nesting places, which the redwing has never been known to do.

I think we may never know for sure how the hard-and-fast rule against the redwing nesting in England was made. It belongs to an extremely remote past. It may have been made at a time when the redwing had but lately come from the hands of its Creator.

The redwing was evolved, like all other forms of bird life, but behind that wondrous process of selecting and adapting one feels there must have been the touch of an infinitely greater process.

As for this masterful law of migration, it looks much as if what was once an absolute necessity for the redwing is now no need at all. The configuration of earth and waters has changed since the law made the redwings return to their summer quarters north and east after a winter here. But the habit of redwing migration having become fixed by many thousands of years of necessity, it cannot be relaxed now, even though the necessity exists no more. Viewed in this light, there seems to be a sort

of senselessness or uselessness in the migration of the redwing; at any rate, the only ends which we can imagine as served are those of distribution—for, if all the redwings and fieldfares which come to us in winter were to stay and nest, there would be too many here and too few in the north and east.

The case of the redwing and the fieldfare is, of course, wholly different from that of the cuckoo and the swallow: the first two could stay through the summer, the second two could not stay through the winter, for they would soon starve.

THE STARLING CLOUD

Once more the starlings of St. James's Park! Surely their roosting flock by the lake has grown in numbers; it was more like a cloud of birds than a flock of birds when I last saw it gathering over the lake at half-past four. Watching these starlings down close to their sleeping quarters, I thought the flocks and parties from the west and from the north alike came whirling, scurrying, tumbling down into and among the plane trees and poplars in a wild and formless way. I could not see them cutting the aerial figures which starling flocks often cut at roost time. Hundreds of birds appeared to fall into the trees as if they were giddy or full of frolic. But perhaps I was too near their final roosting places, and too shut in by trees to get a good idea of the whole performance. At any rate, more recently from a house to the north of the park I saw all the usual starling figures. How beautiful, how wonder-

ful they are! I go a journey of 200 miles once at least each year to watch for a few days the drill of the dunlins; and of late I have forgotten the starling aerial figures in my admiration of the dunlins. But perhaps the starlings are equally good to see. There is the same opening out and closing in of the flock, the same hanging in the air—a sort of dead-point in flight. There is the same utter absence of confusion.

They do not seem to be so gloriously swift as dunlins can be, and I may miss that phase when the dunlins suddenly swerve off from the strand and dash out to sea, as if they were creatures of the sea, not the land, cutting along just above the white-tipped waves; and I may miss, in the starling drill, that constant lovely alternation of light and dark when the wheeling, curving flock changes its plane of wing, and the light flashes on that change.

I may miss the scene, too, of the dunlin exercise, the harbour, and its mud-flats and oozes, and the gorse common and old beaches one rising above another, and the great expanse of open sea. Yet the starling drill is done in a scene great of its kind, too. London has at least a few sky and landscapes of grave beauty and of fine colour at this time. Take St. James's Park seen from the upper part of a house on its north side, the time near sunset in the second half of October. On a sky whose lower ground tint is largely indeterminate, a whitish blue perhaps, wine-coloured fragments of cirro-stratus cloud drift quickly, and among them are fragments

of an old-gold colour. Some of the tops of the trees have grown thin of leaf, and the dull and gloomy green is beginning to disappear.

Against the faintest blue of the sky to the south the great tower of Parliament is proudly set. Above this scene the air is charged with starlings, constantly splitting up into parties and constantly re-uniting, and again and again going through these beautiful exercises on high. There is no doubt about the fineness of this scene; and there is this remarkable feature about it—not a single man or woman is included in the view; it is as free of the human element, though in the heart of London, as the most lonely heath or wold in the country. But this scene can only be got from the upper part of a house; in the park itself the thing is lost or undiscovered.

THE POPPY'S NOD

The humanising of Nature is bad or good according to the way it is done. Where done right it can be wise and excellent. Take the opening love scene in "The Light that Failed." Nothing could be happier than the way Mr. Kipling humanises the yellow poppy which is represented in the cliff scene as nodding its head with approval when the boy kisses the girl—and there is the true touch of genius in literature! Mr. Hardy, in a different spirit, has often humanised Nature—endued forms and scenes in Nature with a personality. He humanises Egdon Heath in "The Return of the Native." There is

the mastering scene, too, in " A Pair of Blue Eyes " of the slip and rescue by a woman's wit on the cliff without a name, where the man, hanging on a thread between time and eternity, strikes up a weird fellowship with the fossils of the rock.

In the best literature of all ages and countries there is a humanising of Nature. It is perfectly safe to make birds, beasts, insects and flowers and trees characters in stories either for children or grown-up people, if it is done with skill and charm. Let these things talk in the language of human beings. The masters in literature can always be trusted to do this in a way that will put false ideas of the actual life and motives and passions of wild life into the minds of nobody. No reader of " The Light that Failed " will get the idea that yellow poppies actually enter with zest into the love affairs of people who walk about the sea cliffs, or that yellow poppies nod their approval of a first kiss. There is no danger of any reader of " The Return of the Native " taking the grim personality of Egdon Heath in unimaginative earnest. The yellow poppy's nod helps us to a vivid realisation of the scene—that is its value ; and it is the same with all these fine figurative touches.

But there is a way of humanising Nature which, I agree with Mr. Roosevelt, is treacherous and mischievous. I have not for a moment any particular writer in thought in saying this, but from time to time one does in literature find birds and other animals presented in a human dress, and in a way that is

likely or sure to deceive the person who has not studied wild creatures. The fox—perhaps inevitably—is often so presented. Its cunning is given a human form. Surely hunting men sometimes make the fox not too foxy but too human.

THE GEM EYE

The pochards and tufted ducks are back on the lake among the birch woods where I have often seen them riding like some miniature fleet in gentle motion; and the pochard, if we look at it through field-glasses, will show in a favouring light its tiny red flag. This effect is mainly due to the bright chestnut head and neck of the pochard—glossed with purple—but I am not sure the eye of the bird may not add to it. The pochard has a ruby for its iris. It is one of the most brilliant gem-like eyes of any of our birds, like the emerald which shines in the head of the cormorant.

Each of the three birds I find at this lake at different seasons of the year, pochard and tufted duck, and great crested grebe, has gems for eyes. The moorhen, with its eyes of reddish hazel and the coot are not quite so notable, though they may be worth examining. The great crested grebe has a crimson iris, the tufted duck's is golden yellow. The English birds with the gem-like eyes are chiefly ducks, grebes, divers, owls, and perhaps herons. I have talked over this curious question with a man who probably has as long and unbroken an experience of English birds, common and rare alike,

as any one in England. I cannot accept all his theories, but his bird talk has a singular charm. As to the gem-like eyes in the divers, he insists they are an angler's lures. The glittering red eye of the great northern red-throated and black-throated divers holds the small fish as the glittering eye of Coleridge's Ancient Mariner held the wedding guest —and the small fish comes to its doom!

I am not persuaded by this theory of gem-like eyes; I should want to satisfy myself by *seeing* the small fish draw near to the diver's eye in a tank or large basin of water ere I believed; still it is a theory that may set us thinking as to the meaning of this feature in birds. Among our small perching birds the iris is not gem-like or high-coloured. No doubt, viewed through a microscope, the eyes of small birds would prove very wondrous and exquisite organs, but, viewed with the naked eye, they are not as a rule very striking. True, they are, in some birds, very bright and even eloquent. "Their bright, bright eyes," says Coleridge in his lines on the nightingale. Its eye is a very bright, a speaking eye, but it is not remarkable for high colour or glitter.

Expression there indeed is in some of these small bird's eyes—the song-thrush's eye is full of pathos. But I am not considering the question of expression, but that of vivid, striking, or staring colour.

I can think, indeed, of no small bird with iris of this kind. I believe the lesser spotted woodpecker (which, I have never seen alive) has the iris red, to match perhaps the crimson of its crown;

and the greater spotted woodpecker, the "French pie," has also a red eye and a red crown, whereas the green woodpecker's eye is inconspicuous. But the English warblers, finches, larks, buntings, pipits, and other orders of small birds have nothing remarkable about their eyes. I should say a skylark's eye is brown, somewhat like its plumage; but I have no notion what is the colour of the chaffinch's or the goldfinch's or the linnet's; probably few people who have kept such birds in cages for years could say what their eyes were like, unless they looked carefully at them. It is much the same with many of the middle-sized birds. The cuckoo is an exception. Here the yellow eye amid the ash-grey plumage is striking. A friend writes to me of the "mild blue" of the jackdaw's eye belying the villainy of the bird's character. The jackdaw's eye is uncommon, though I am not sure it is really blue. He goes on to speak of the wonderful arrangement of bone in the eyes of the raptores, and he asks, "Did you ever examine the iris of the grebe? Those I used to kill in the Falklands had a gold rim at the pupillary margin. When the pupil was contracted this was thrown into folds, and looked like gold beads."

Apart from the hawks, falcons, and owls, some of which have very hard and vivid eyes, the families of birds that strike one most in this feature are the ducks, the divers, the grebes, the cormorants, the spoonbill, several of the herons, the oystercatcher, the crane, and the bittern. To only a few

of those could the brilliant, gem-like eye be of use as a fascinator, even assuming the theory is good. The pochard and the spoonbill do not live on food that needs to be fascinated. The oyster-catcher has a splendid crimson iris, but it could not have been meant for fascination. Several of the herons have remarkable eyes, mostly yellow, and I dare say one in love with the theory might play with it here. A heron will sometimes stand in the water and stab with that terrible bill the fish that drift past. Fish will be lured by powerful light focussed on them after dark, and we know that the glitter of a bright "fly" or spoon bait will draw them; but the heron's eye is well above the water, and I doubt whether its glitter would be very striking.

Questions of light may often be the secret of the varying irides of birds—regulating the supply of light and serving to adapt it to the special needs of the bird concerned. But another idea occurs to one—may not the gem-like eye in some birds be part of the sexual finery? The crimson eye set in snow white, as with the spoonbill, is effective and beautiful. Does the iris vary at all according to the sex of the bird? It often varies according to the age of the bird; some young birds do not get their brilliant eyes till they have moulted and reached a certain age.

There is one strange thing about gem-like eyes in birds which has never been discussed; the colour of the eye of one of the pochards will change colour

if the bird is caught and confined for a time, but on the bird's release it will take back its natural tint. This reminds one of the quick change of colour in a rainbow trout.

THE SCHOOL OF SONG

As to the song of the thrush in early autumn a lady tells me that in Winchester the birds there were singing on September 28, during soaking rain, whilst three days earlier a blackbird was crooning a kind of under-song, broken and disconnected, but sweet. Her notion is that the birds begin to sing anew after they have moulted. A blackbird singing in September, under-song or full song, is new to me. It is probably a most fastidious singer in autumn; though I do not forget that until a year or two ago I was quite an unbeliever in the singing blackbird of early February; many people, however, wrote to tell me they had heard it through that month, and one day I heard it myself.

The song of the wild blackbird is, I should say, quite uncommon in February, rare in autumn, and in December and January almost unknown. Birds do not always strike up anew after their late summer or autumn moult. Thus the blackbird rarely does so. But once the moult is ended and the bird is feeling comfortable again, it is more likely to sing; and this is what may happen with the song-thrush and the missel thrush.

The list of English singing birds which sing only during the spring and early summer is quite small.

I exclude the birds of passage. Taking the birds that stay with us all the year, I can think only of about a dozen which I have not heard at some time, either in the autumn or winter. These are the blackbird (which, however, does sometimes warble in autumn, as my friend shows), the stone chat, the meadow pipit and the rock pipit, the greenfinch, and the yellow hammer. The Dartford warbler I do not know at all, and I have not watched the dipper, the siskin, and the lesser redpoll enough at these seasons to say anything about them. I have never seen or heard the woodlark.

The bullfinch seems about the most fastidious of English singing birds. I cannot imagine it as an autumn or winter singer. I should find it still harder to picture the rock pipit's faltering flight song, save in spring or early summer. It is a song of the mating season, all the passion of spring in it; the rock pipit's flight-song at the edge of the sea cliff in April is exactly like that of the tree pipit in the oak and hazel coppice.

But the song-thrush, missel-thrush, blackbird, skylark, common bunting, pied wagtail, redbreast, hedge sparrow, gold crest, wren, ring dove, cirl bunting, goldfinch (early autumn, at any rate) and linnet sing in autumn and winter. There may be others, possibly the stonechat and one or two on my list of birds I have never myself heard at these seasons. But, be this so or not, it seems that of our resident singing birds at least half the species sing in three or four seasons, the four-season singers

being, in my experience, song-thrush, redbreast, wren, hedge sparrow, and missel-thrush ; and the the first four of these are among the most familiar of all home and garden birds of England.

So the notion that birds' songs belong to the time of green things and blossom—as Landor puts it, " while the birds are singing and while blooms the bower "—is misleading. The song is fuller and richer and more frequent in spring and early summer than at any other time ; one cannot say more than that.

NOVEMBER DAYS

The morning mists, which often inland are almost a sure sign of a bright day, sometimes lift late by the sea coast. The sun appears to prevail by eleven o'clock, but a heavy mist sweeps in from the sea, and the air does not clear till the early afternoon. There is an hour, a short hour of warm and delicious sunshine, everything steeped in it, and the redbreasts singing with rapture the song that is now perfect once more ; after that we appear to be in the period of sunset light effects and sky. At this time of year by the sea nothing strikes me more than the shortness of the afternoon on one of these days which open with reeking mist that makes the tufts of grass wetter than the heaviest rain can make them. The afternoon is hardly started before we remark on its being almost over. But, in the hour or two it lasts, the lustre of the sky to the west and to the south over the sea is very beautiful. It is not so

much colour that is cast on the great expanse of sky which comes under the glow of the sun now clear of cloud refuse—it is a suffusion of gold or yellow light. Yet neither gold nor yellow is a satisfying word for this sky effect. The thing is far too elusive to be captured by language. It is simple to describe in words the split light ray when it is presented in the strong and definite and divided colours of the rainbow, or on the sheeny back and sides of a swan seen through field glasses. But the lustres and delicate suffusions of sunlight about and above these sea horizons in autumn and winter are of another class. They are ethereal; even more so, I think, than the faint washes and afterglows of a red sunset.

ON THE LINNETS' COMMON

The later or winter phase of autumn often begins with a series of distinctive evenings. Year after year comes the same kind of sunset and evening at this season. In some years it begins earlier—perhaps by the middle of October—but, on the whole, November seems to be the month when the second phase of autumn is suddenly seen and felt.

By five o'clock, nearer dark than dusk, heaths and wastes are sheeted by the winding, rolling stratus, or earth cloud, and there is a molten sunset against which the stripped trees on the low horizon show finely. The sky to the south and west is quickly washed over with deep purple and copper hues, whilst above these is a sphere of sulphur

on which float a few fragments of formless cloud.

Such sunsets mark November, especially after heavy rain. The heavy stratus clouds must be largely the result of the rain, and it is the contrast of these cold and white shrouds with the molten and sulphur skies which makes the scene so very signal—this and the branches and twigs of the stripped or partly stripped trees etched out against the horizon. It is on such an evening that I have watched the beautiful spirals of the linnet flock on the common at the roosting hour.

IX

BY A WINTER SEA

It is hard to realise, until one has proof of it by eye and ear, how many wild things are to be seen within a small space on the coast or inland, even at the least promising spot. This is often well shown in a city. Take quite a small garden in London itself, at some district near the river or one of the larger parks, and look out for bird life in its trees, even from time to time during a year. Birds will appear whose presence we should never expect. There is a poplar tree in a Chelsea garden—a small garden, where we might look only for London cats and sparrows—a tree which I can see now from my window. One day a chaffinch dropped down from it into the roadway with that bold "spink, spink." Looking at the poplar's stripped boughs another day I saw a small bird with movements whose sprightliness bespoke at once a titmouse; and, indeed, before this I had seen a pair of blue titmice in this very tree. Ring doves are often there; starlings are there now and then, or on the roof close by; a carrion crow was often to be heard or seen flying over. I have seen swifts passing by, high overhead, and a swallow or a martin hawking for flies in October along the roadway beneath. The

blackbird I often see in the poplar, and hear its loud, cackling outcry after dark—once, indeed, late at night.

Take a very small strip of sea coast, cliff and sand, say two hundred yards, and watch it each morning for a month or so ; the result is quite a long list of wild life. The shore seems utterly barren on dark days in November and December, yet it has its wild inhabitants and visitors. I learnt this during the autumn and winter, at a point on the South Coast. At first I could see nothing, but in a few days I found that there was something to be seen every day. Even butterflies are not wholly absent from the sea coast on a bright day in October or early November. I have seen one of the Vanessa butterflies come straight in from the sea, as though it had just crossed the Channel, and fly up over the high cliff. I could not determine whether it was a peacock, large-tortoise-shell, red admiral, or a Camberwell Beauty fresh from the Continent, for it was too high above me ; but it was certainly one of those Vanessa butterflies, powerful on the wing, and I suspect that the sight is not so rare, even at this late season, as one might suppose.

When our eyes grow accustomed to picking out objects floating among the small waves a hundred yards or so from the strand, we begin to notice duck and diver. Day after day I have noticed little parties of tufted duck, or of " black duck," as the scoters are called, floating at almost exactly the same point. The great crested grebe will sometimes

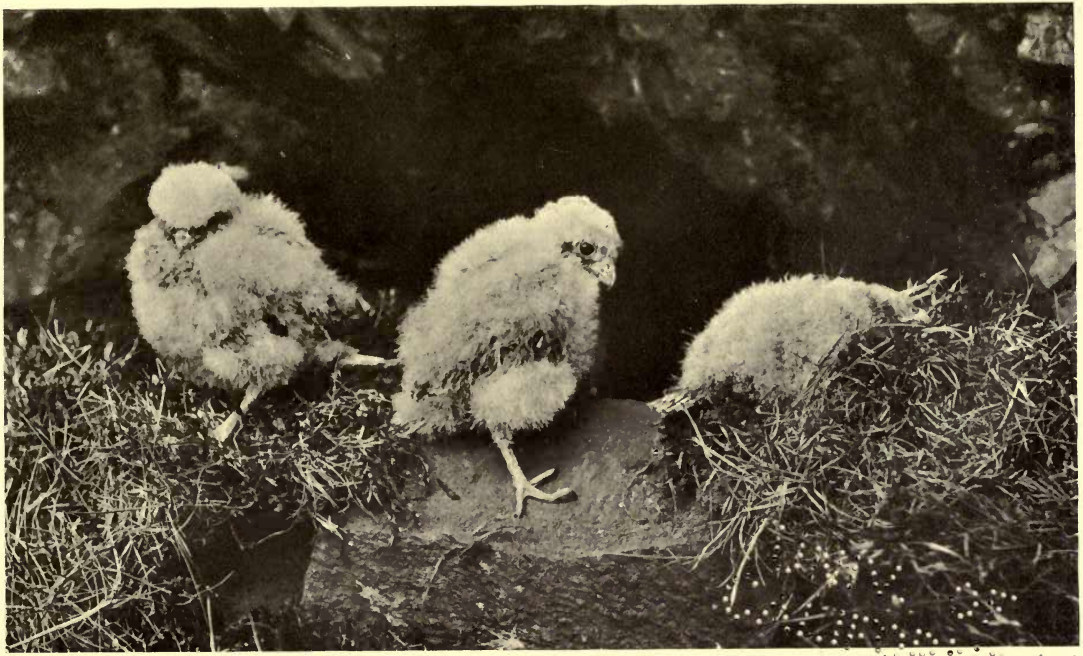

Photo. C. Reid

VOUNG KESTRELS

come still nearer the shore : I have seen one within a stone's throw, which saw me and yet showed no fear, diving and swimming about at its ease.

One brilliant morning, perhaps as late as the middle of November, long after we think we have seen the last of the swallows, a pair of swallows appear overhead. They are flying not seaward, but straight in from the sea, like the Vanessa butterfly, as if they had been drawn back from the south by the balm and beauty of the weather.

When ill, I lay morning after morning at a point where a thread of water from a chine or bunny trickles through the clay and sand cliffs to the sea; and here in a November or December day there would be two or three pied wagtails. They came bounding down from the sides of the cliff with their cheery call, and settling with the exquisite grace and style of their kind, ran and tripped at the edge of the sea, feeding daintily in its foam and flashing bubbles.

Rock pipits came in pairs—they mate, perhaps, for life—and if the stonechats did not come actually on the sand, at least they flitted about the rough grass a few yards off, taking up their stations very often on the dead stem of some sea-loving plant. Day after day the kestrel, which, if it is a typical inland bird or bird of woods and fields and downs, is a typical seashore bird too, will appear at the same hour at the same spot ; the kestrel seems to be one of Nature's most accurate time-keepers, like the nightjar and the convolvulus hawk moth. There

are many other bird visitors through late autumn and winter days to this scrap of coast.

GOLDCRESTS

The goldcrests are plentiful through the year wherever are fir woods and evergreen plantations. I cannot think of a place with a few fir trees where I have not seen them. In East Anglia and the West country, in the South and the North and in the Midlands, I can see and hear a goldcrest any day in the year. But November brings in a crowd of goldcrests from the north or east of Europe, and many of the birds in the shrubberies and fir plantations then are travellers that have lately reached England. Among them may be a firecrest more often than we think, for the firecrest can only be known from the goldcrests by the light streak over the eye and its slightly brighter crown. Happily the gold and the fire crests are so minute and the distinction between them is so slight to the eye, that they escape the absurd person who imagines he has served some good end when he shoots a rare bird and establishes a " record " for the county.

Lovely little things these goldcrests are to watch in the birch trees now when the leaves are fast thinning. Until the goldcrest is seen low down in a birch tree, we hardly notice what an important feat the hover is with him, and how often he uses it in his search of food. The birch trees in November must be full of goldcrest food, though, however closely we look at the fine twigs and at the falling

leaves, we can see none. The forms of insect life which feed a goldcrest or a tree creeper are minute as the eggs and the new-hatched grubs of the microlepidoptera, the families of the tortrices and tineæ, lovely little moths that sometimes swarm in the summer oaks and other trees. Thus, there is one little exquisite, the silver-barred pigmy (with an important Latin name, Nepticula aurella !). This mothlet itself is scarcely the size of two pins' heads set side by side ; whilst its caterpillar, when fresh from the egg, must be much smaller. But a grub of the silver-barred pigmy would be a big helping for a goldcrest. The mites which the goldcrest finds on the twig tips and loosening leaves of the birch tree—a hundred or more mites, perhaps, at each visit he pays to the tree—are minuter than a pigmy's fresh-hatched grub or fresh-laid egg.

When within a few yards of the busy goldcrest, we see that in the birch tree he often gets his mite of food off the leaf or twig hovering. He is perched on a twig under the leaf, looks up, spies the atom of food whatever it may be, and swift as thought is in the air, and, hanging there less than a moment, has secured it.

He whips off to another twig, and picks up an insect whilst he is perched ; but he has scarcely seized this second atom ere he has spied a third on a leaf or the lower part of a twig out of reach, and is hovering again. Watch a goldcrest for five minutes in November in a birch tree where there is plenty of insect food, and you may see him hover twenty

times. It is hardly as the hover of a bird: it is more like the stationary whir of a moth or of volucella or syrphus.

I am struck by the moth-like way a busy goldcrest works through the birch tree. It is not the style in which a long-tailed titmouse works through the same tree: the goldcrest whirs and flits through like an insect; the long-tailed titmouse swings through as a redpoll swings—only he is not so neat—or sometimes he reminds me of a mouse among the twigs. Goldcrest and long-tailed titmouse are entirely effective in their different styles of motion in the birch tree. They never miss the mark.

THE INVITATION TO ROOST

The first hard night of autumn find many small birds cuddling in cosy spots. Now and then we can have a peep at the bird getting to bed when the leaf is off. Twice I have seen a pair of golden-crested wrens settling for the night. The first time was in spring, when the two little things snuggled together on a fir tree twig, and puffing out their feathers and tucking their tiny heads from view oddly resembled a golden wren's nest. No doubt the scraps of a play between two golden wrens another evening ended thus, but I lost sight of them when they flitted into the deodara. A birch tree, almost bare of leaves, stood out against the frosty-looking afterglow, over which Arcturus bickered like a pale ruby. In the twigs were two golden wrens that waited closely on each other's movements.

From twig to twig one bird followed the other, and I saw pursuer give pursued a kind of mild peck; it was the lightest touch—if it really was a touch. There was nothing that looked like a chase of anger or rivalry; it was as if one golden wren was inviting, cossetting, the other to roost. Courtship between birds is surely out of the question on a chill November eve, and the movements of these mites seemed not swift enough by half for wrath. The gentle pecks, or stretchings out of bill to bill, might be likened to the antennal communication between bees or ants, the dumb language of touch.

WINTER CHAFFINCHES

An hour after sunrise I came upon the largest flock of chaffinches I have ever seen. It must have held a full two thousand birds, and among them were only a few greenfinches. The great mass of the birds were cock chaffinches, but it was not, as these winter gatherings often are, a bachelor gathering only, for there were several hundred hen chaffinches in the flock. The flock rose in two great parties with a whir as I approached, and swept round into the hedge. The stubble field where they were feeding was still white and sparkling in the sun with the hoar frost, and the effect and whole scene of this Sussex hill was exquisite.

Later came the dark skies full of formless scud cloud, and then those dripping days when English landscape, either in open fields or woodlands, appears at its sorriest. These are always the worst

days in an open winter and the most dismal, colour being blotted out and form losing all its definition, whereas in wild, stormy weather, even in driving or lashing rain, there is always something bold and effective to be seen.

Another morning after a snowstorm, I found the flock in the same field. Dozens of cock chaffinches clustered within the space of a few yards in the bare hedgerow, made a pretty bird picture, though as yet their breasts have not begun to burn with the fires of spring. Most of these birds, I should say, were foreigners, but our home birds—the old cock chaffinches among them—are probably not brighter in tint at this season. And yet these birds, I believe, were all full-plumaged. The burning rosy tint which the chaffinches will begin to wear in a month's time, and which will be at its best by mid-March, is not made through the addition of new breast feathers.

How exactly the fire is kindled and brought to such a glow I cannot say, but the thing, I am sure, is quite independent of any moult. The extra gloss on the breast of the chaffinch in March is got by the feathers growing smoother and smoother, and sitting more and more exactly on each other, but the extra glow or fire on those smooth feathers is another matter. As to why it is lit up, on the other hand, we need be in no doubt—it is the " dressiness " of natural selection, the finery of feathers by which the cock chaffinch appeals to the hen: and when it burns its brightest, the bird is at his highest physical perfection and greatest spirit.

THE STONECHAT

The wren of the woodlands is not more faithful to its home than the stonechat of the coast. The stonechat, as I first knew the bird, seemed to me a regular migrant. Spring after spring a pair of stonechats appeared at the corner of a furze common. They brought off a brood of young, though I was never able to find their nest in the thickets, and they disappeared in the autumn with the redstarts and all the regular birds of passage. This pair of stonechats was not content with one haunt for the whole year, but it seems to be quite otherwise with the stonechats by the sea.

Those young stonechats which are reared by the sea may migrate, at any rate disperse, from their native cliffs and commons; indeed, many of them clearly leave, for winter often finds only the old pairs settled in the same spots. But these last will live year in and year out on the same patch of wind-swept, barren-looking ground. The wheatear comes and goes, the whinchat comes and goes, but the seaside stonechat needs no change of food or clime. Finches—every one of them—redbreasts, thrushes, blackbirds, starlings, titmice, perhaps even hedge sparrows, are vagrants compared with the coast stonechat. One cannot go on chance to a certain field or patch of bushes or garden and say with absolute confidence, "I can show you a pair of hedge sparrows there which have been about the spot this whole year and never leave it." One can go on

chance to a certain bit of sea coast common or broken cliff and be sure to see a pair of stonechats. The weather does not matter. Mild or frosty, still or boisterous, the stonechats are to be seen on their chosen bit of ground of a few acres.

Perhaps they are not very attractive little birds at this season till one comes to know them well and watch them closely; but then they may become favourites. I have not heard the stonechat give the smallest scrap of its petty—but pretty—song in winter. I have watched him alike on dazzling bright winter mornings and on dull days, and on both he has been silent. I heard the poor titter of the common bunting by the seashore one grey afternoon, and a song-thrush sang blithely in the sun from an evergreen close to the beach; but not a sound came from the stonechats.

The stonechat's charm at this season is in its very sprightly carriage and quick, lively action. Often, watching stonechats by the sea, their name has not seemed to me so happy as once I thought it. The stonechat is not seen on a stone so often as to justify the name. Its favourite perch in its sea-common haunts is a low bush—such as furze or dwarf furze a foot or eighteen inches high—or a small hump on the ground, clod of earth or even a wormcast.

When perched on a bush three or four feet higher, or on a post by the beach, it will often glide to the ground in the exact manner of a shrike gliding down from the roadside hedge to seize an insect in the grass. I do not know of any other English birds that have

this action, though the house sparrow has something rather shrikey in its movements.

Another manner of the stonechat is its whizzy little low flights from bush to bush or clod to clod. It sweeps along only just above the ground, and, at a little distance, has often looked to me like some large moth. Then its quick, restless foot action is delightful—something like a hop, skip, and run.

Last, the stonechat's tail flick. This is not so pronounced as the wagtail's or the redstart's, but the short, almost stumpy tail of a stonechat is rarely still for long. Many of our smaller birds have a constant action of the tail whilst they are perched and whilst they are moving about among the twigs in search of food. The nightingale, all the wagtails, the redstart, the wheatear, the redbreast, the blackbird, the shrike, move their tails constantly. Even the buntings, which are more sedentary than most small English birds, and will sit sluggish-looking for many minutes on tree twig or clod of earth, have a small action of the kind. But with the stonechat the tail flick is incessant. It gives one the idea of a most alert and volatile little bird.

The seacoast stonechats affect through winter the ground which the rock pipits affect, but many pairs have far more taste for human neighbourhoods than have the pipits. The rock pipit is an aloof bird. He shuns human society. The stonechats are to be seen in the same lonely spots as the rock pipits, but they are also to be seen all day close to houses and gardens by the beach. In some

places they almost take the place of the redbreast, feeding on the lawn, perching on the garden wall, on the roof of boathouse or bathing machine; and here they become so trustful and bold as to suffer one within a few yards of their perch on railing or ground.

With his red breast—faint red in winter, but bright in early spring—and his black cap, and that bar of white across the wing which shows up so well in flight, the stonechat is comely in dress as he is lively in habits. I wonder he has never become a favourite and familiar English bird.

THE BASS ROCK

December blue can be even as deep as June blue, alike in British sky and sea. The colour depends on the angle at which it is presented to the eye, and the most splendid effects both in blue and green by the sea are only to be got when we have our back to a midwinter sun getting low towards the line of horizon. The East Coast of Scotland is hardly the place where one might expect to see very pure and lovely sea and sky blue at this time of year; yet on this coast in December I found the colour lustrous and wonderful. After several leaden days, and harsh wind and wet, the sky was cleared and the Bass Rock stood out of a Cornish sea blue. No wonder this rock is fast in the imagination of the whole countryside around, painted by thousands of hands, and secure in the mythology and romance of Scottish history. Ironbound rocks are common to various parts of our coast, and they are often

impressive because of jagged and contorted outlines and the way they have of lashing into white every sea that breaks on them. The stack-rocks are always impressive in storm. The long and short islands, as they are called, on the tremendous coast about Boscastle have a fearsomeness and majesty which match those of high mountains: their isolation and aloofness and the part they take in working up the surf are grand; and at other times, their blackness in the midst of the serenest blue of clearness and calm.

But the Bass stands out distinctly among the isolated rocks near the coast. The extreme abruptness of its start from the sea, and the sheerness of its walls and its huge and cumbrous build mark it out. Its bases are not only hid, they are hardly hinted at—a mere shelf at one or two points suggesting that it is not sunk straight down with fjord deepness and straightness.

The Bass, moreover, has none of the stack-rock beauty of broken and jagged outline. The Bass looks an awkward pile; and when I have seen it, it has taken little of the loveliness of colour and tint in which the air and water are steeped on a brilliant day. Its dull green top and land side, and its weather-stained wall black-brown and soiled grey or dirty chalk hue, as seen from Tantallon and from Canty Bay, catch little or no beauty from sea or sun at this season. But what a bath of colour the Bass is surrounded by after midday in December when the sun shines from a cloudless sky! If we

lie down on the cliff near Canty Bay and view the rock just over the edge of one of the golf greens, the blue of the sea in which it is set glows with an intense transparent look ! It is like that blue which sometimes lights up on the neck and back of the swan seen through glasses in certain states of light, but it may be intenser. This blue spreads or *runs* from the sea into the air above the sea, reminding me of the effect of a great blaze of poppies in July, the red of which also runs into the air above the flowers. The green, over which this blue is seen, is lit up in the same way ; it glows with the same intense transparent appearance, the very opposite of the bright green of larches and birches in spring, which is opaque and pigment-like.

Such December colouring is only got by viewing the thing at a certain angle, and with one's back to the sun ; nor does it last any length of time, as the colouring of summer seas lasts, but it is quite as real and wonderful. The sky too on these very short December afternoons, if one looks towards the Bass and the Fifeshire coast in the far background, has those faint and most delicate tinctures which are seen in the after-glow of midsummer eves.

The Bass, with Ailsa Crag and one or two rocks on the other side of Scotland, is I believe the only nesting station of the gannet or solan-goose on British coasts. The whole immense population of gannets, however, has left the Bass by December. I saw not a single bird—they were scattered along the English coasts, some thousands of them

probably on the south coast of Cornwall and Devonshire.

The Bass is left as roosting-place to a few kittiwakes, common gulls, guillemots and herring gulls, with perhaps a pair or two of the great blackbacked gull. The kittiwake I do not remember to have watched feeding inland in the South, but here it will visit the new ploughed fields, like the other gulls. It is beautiful almost as a tern on the wing; and, flying about a field, will drop now and then and pick up a scrap of food without alighting.

THE LANE

Even after dark in December the leafless English lane has a charm in landscape. There is a lane that straggles from the river valley into the downs, growing wilder and grassier as it mounts to the high ground. Passing through on a winter evening I found the place not so disconsolate as I expected. True, the merit of the English lane in landscape chiefly lives in tangle of flower and creeper and tree foliage—and all that is gone with the autumn. The thickest parts of the lane can easily be seen through, whilst the thin parts, which could be just seen through in summer, are gaps now. The hedges are bare, except for ragged scraps of traveller's joy, which are only good to look at when dry and glistening in the winter sunlight. Yet a beauty is in the bare lane now after dusk or darkness has blotted most of the landscape. Through the gaps in the hedge the wind, blowing up for rain from the

south-west, comes freshly across moist fields, and even against dark sky those firs in the lane with very thick bands of ivy stand out finely; an ivied tree trunk is never better in landscape than when presented in all its blackness against a cloudy evening or night sky in winter.

I was interested to find, when I recalled this lane as it is in late spring and through the summer, that the list of its wild things is quite long and varied, though its whole length is less than a mile. It starts at a thatched hamlet in the narrow valley close to the head spring of the stream, and winds up to a branch or farm road to the downs, crossing near its upper end the railroad; and, here, as with many other English lanes, the railroad adds to the variety of its wild life. At the hamlet end of the lane in spring and summer one scarcely looks for any nests save those of song-thrush and blackbird and hedge sparrow—the nests for the hamlet children. In some seasons I have seen those nests—at least the thrushes' and blackbirds' nests—*thick* in the white-thorn hedges. A few hundred yards of this, and the lane changes in character. The regular and tended hedges cease, and the lane runs through an avenue of trees, ash, sycamore, oak, and a few spruce firs and pines; a broad belt of these on both sides, with a rough undergrowth of bramble beds and coarse grass and brier bushes mingled with a little birch and hazel underwood.

It was just where the tended hedge ceased, dying away into some rough old thorns and tangle under

the beginning of the avenue part of the lane, that I found the dormouse's little ball of a nest one day in summer, and saw her busy at work. I remember her bright eyes! Above this, in the brambles and coarse wood grasses, was the garden warbler's nest, with one dead chick hanging across the edge, and the parent birds, quite unconcerned, brooding the while over their live young and feeding them.* A few yards away was the chiff-chaff's nest lower down in brambles, the secret of its site being given away by some long straws which the builder had found on the road a yard or two away and carelessly woven into her lovely fabric.

Where the avenue ends, the lane is almost in the open fields for a very short way, being only divided from them by some posts and rails covered densely with ivy. Then comes the railway bridge, and when this is passed one is in the real wild, disordered part of the lane. Here is the Birket Foster end of the lane: I think that any one who prizes the work of Birket Foster will understand what this means. There have been in the last half-century two artists, perfect drawers and painters of the South-country lane and hamlet. The first was Birket Foster, the second is Mrs. Allingham. As a rule I do not care much for the precisian in art, or for photographic fidelity. I prefer the impressionist. But when it comes to one of these English lanes, give me the exact detail of Birket Foster. He was the portrait painter of the hedgerow elms. He drew the hedgebanks,

* *See* "The Glamour of the Earth," pp. 179-180.

and the hamlet corners, the keeper's cottage, the bit of Early English church spire among the trees, the hamlet children scrambling about among the ash and hazel spinneys, with such loving truth that to look at his pictures sets the looker longing to be there in spring or early summer.

He communicates the thing to you—a rare and peculiar art.

Some of Mrs. Allingham's colour pictures have the same quality. I looked down from a high lawn in Surrey in May, and said to a friend that the hamlet beneath looked as if it ought to have been painted by Mrs. Allingham. "The Allinghams lived there," he answered.

The Birket Foster end of the lane has a very deep hedge on one side, a hedge which carries an immense weight of wild clematis. On the other side it is different. There is a band of grass, broad at first, but narrowing into nothing at the top of the lane, and behind this band are thick beds of nettles in summer, then some dense blackthorns and briers; betwen these and the field above—for it is a sunken lane at this upper end—is a spinney of hazel and dogwood and ash stems, where the ground is covered in April and May by the little green moschatel, and elsewhere by bluebells. All this upper end of the lane lives with birds in May and June and July. It is the same with hundreds of these old and neglected farm roads of England.

They hold now in December, perhaps, a pair of hedge sparrows, a few robins, a few wrens, and a

passing linnet; whilst a forlorn yellowhammer flies up at a gap in the hedge. By and by they will teem with birds once more. Nightingales nest on the dead leaves in the spinney, whitethroats in the nettle and coarse grass and old plant stems' tangle at its edge, linnets—half a dozen pairs and more—in the billowing clematis, wrens in the exposed chalk wall at the top of the lane, and in the few ivied tree trunks there. It was at this spot I found a wren's nest in the ivy one day in early summer, and saw a family of seven or eight young birds bubble out and flit into the thick grass and umbelliferous plants; they returned to this nest later, though it looked not easy for a young bird, which possibly had not been out before, to spring up into the ivy nearly two yards from the ground and scramble through the little moss entrance.

COMPETITION

Of all lessons in the plant world I know of none more striking than that in the modern oak wood. At mid-winter when nearly all the leaf is off—only a very few oaks carry their dead leaves, like the beech hedge, through winter—the oak wood may impress its lesson on us more than at any other time, as we can see so much of the build of the trees. Roughly, to-day in England there are three kinds of oak wood. First, the wood where among the trees is a more or less heavy crop of underwood, as ash, hazel, oak, dogwood, "withy," and birch; second, the wood where there is hardly any underwood, only spreading

oak trees with gnarled branches and short and thick trunks; the New Forest, in many of its "Walks," gives the best examples of this wood—the wood beautiful, to-day not of much use, as we no longer want crooked timber for our warships.

The third wood is inhabited wholly by trees—no underwood—which, growing close together, send up long, clean, straight trunks. This is the wood of use: the wood wherein great oaks spread, each with a goodly plot of ground to itself, is the wood of beauty. The wood of use is the wood of competition. Nature throughout lives and thrives on competition. Any English wood, hedgerow, riverside, marsh, moor and meadow makes plain this truth. Every kind of wild life has evolved through competition. The road to perfection of form is the road of competition. It is a highway —to adapt an image of Lowe's—strewn with the skeletons of dead species or varieties.

Now about the oak wood for use there is this extraordinary feature: man, adding competition to competition, has for his own ends improved on Nature in her particular province. In Nature the oak wood left to itself does not grow its trees so close as they are grown in the wood of man's invention. The trees take the New Forest form rather than the tall, straight form aimed at in the State woods in Germany; where the acorns are sown in rows close to each other, it is a race upward to air and the sun by the young trees. Here, in the extra-competition wood, is the best illustration of the

saying, " You cannot see the wood for the trees " ; for they are so thick that one can see no distance into the wood.

The employment of competition in Nature by man is entirely a success. We see it in the oak, but still oftener in the larch wood. Generally farmers and gardeners must spend much time in thinning the crop soon after it begins to spring : they hasten Nature through her work of competition. But in the modern oak wood or larch plantation man reverses the process—he deliberately thickens instead of thinning the competing crowd, and, doing so, gets the form of tree he needs in the shortest time he can.

This deliberate encouragement of competition in Nature, this adding to, accenting of it, may be the only example of the kind in forestry or farming. I cannot think of another. Yet competition rules everywhere in Nature. It is as great a law as gravitation. Without it, order is unthinkable. We can no more bar it with success in human life than we could bar it in Nature. And, yet to-day there is a party of men in almost every great State who dream of re-making civilisation on a new foundation ! They will not go to Nature, and learn the simplest of the lessons.

X

AT LIGHT

I WOKE early on the first day of the year to hear the ring dove, the chaffinch, and the nuthatch—with the redbreast, of course—bring in the light of a new year. It is worth doing that! Soon after full light, I heard the ring dove in the copse across the meadow, and the sharp "whit, whit!" of the nuthatch came from the oak tree just outside my window, and the metallic "pink, pink!" of the chaffinch as he dropped into the roadway from the same oak or a spruce fir hard by. These two sounds are heard at the same spot in Sussex almost every winter morning; the chaffinch roosts in the spruce fir, and the nuthatch may roost in a hole I can see in a dead limb of the oak—he is in that tree punctually almost every morning at this time. Later, when I went out, I heard another ring dove cooing in the spinney across the road, where a missel-thrush was singing.

There are winter mornings when one is sure to hear a missel-thrush—bright, clear mornings, how serenely still! I expected a missel-thrush on the morning of January 1, and there it was before mid-day in good song. The ring dove cooed whilst the grass was still white and crisp with frost, and I

recalled that I had heard the bird at the beginning of another year—in 1905 at Longparish, on the river Test; when the country was quite white through a light fall of snow.

What sets my ring dove singing in midwinter when the grass is crisp with white frost or coated with snow? Next morning he was cooing again in the white fog. I doubt not that what happened in this part of Sussex among birds was happening elsewhere: ring doves must have been cooing in many places in England soon after dawn on the first day of the year. Later in the morning, when the sky was overcast, and it was cold and cheerless after the sunshine of early morning, I heard a chaffinch not only crying "pink, pink!" but trying to sing. A wild chaffinch in song on January the first was wholly new for me. This bird, two or three times whilst I was listening, ran through that chaffinch ripple which we value so much on the first mild morning in March. It was feebly rendered, but one could not mistake it. It surprises me as much to hear the chaffinch's ripple at the very start of the year, however feeble it be and low, as to be told of the blackbird's flute in December.

This chaffinch was a garden, not a woodland or wayside, bird; I think the earliest chaffinches to sing, like the earliest song-thrushes, and the earliest —or latest—blackbirds, are those about our homes rather than about wild spots. Fat feeding and good quarters make for music. Besides, these home birds are single or paired; whereas the finch in the

wild is often the finch in the flock, and the only flocked birds I hear singing are linnets at the close of summer, and the starlings.

VILLAGE TONGUES

Trench says in one of his books that if Anglo-Saxon is the woof of our language Latin is the weft. Of course this is true, but who with a taste for words does not choose where he can the woof? The real English word is not only so much sweeter in poetry —it is so much stronger in prose.

The short, easy to speak, easy to write Anglo-Saxon word strikes straight and simply home. It is so clear and simple, so finely direct! The Latin words—I mean the words that come from the Latin —or many thousands of them at least, may be well enough naturalised, and we should be woefully halt of speech without them; but the Anglo-Saxon words are felt to be our real national words, the absolute English part of the English tongue. It is this which makes the lingering dialect of our country folk valuable and worth keeping.

I do not know whether free education teaches Latin—I am sure it does not like Anglo-Saxon. Probably within fifty years most of the fine old English words that linger in outlying villages and hamlets in the South of England will be dead words; and with them will go most of the local sayings. A good many of these sayings touch on woodland matters. Woodworkers in the South are very old-fashioned. Cutting underwood and

timber, stripping bark—a dwindling if not a dying business—hurdling and faggoting have had a little dialect of their own in the South, and I dare say in the North and Midlands. I have spoken of some of these good wood-words before, but not of the term "lans" used of the lines of brown underwood where it lies cut and ready for the hurdler and faggoter. I have spent much of my life in a place where this term is still general. It is well known to buyers and sellers of underwood, and is always used by the woodworkers. I used to think it was "lands of wood," but I was told by one who can hardly be mistaken in such a thing that, when used by the woodworkers, it is always "lans of wood."

The lans is rather a favourite spot for game, fur and feather. I cannot recall finding a hare among lans. Hares choose high and standing underwood to rest in during the day, where they will sit in a "form" on the bare ground among the dead oak and hazel leaves, or in a thin bit of bracken; they do not try to hide among undergrowth, as a rabbit does when resting in its form. But into the lans many rabbits creep, and even sharp terriers are hard put to it to hustle them out. In spring the lans are favoured by wild pheasants, which often make their nests among the felled underwood. Of little birds, wrens haunt the lans all through the winter, whilst blackbirds and thrushes nest there in early spring. The origin of the word is obscure, but I think it is probably identical with the old harvesting term once used in Kent. There it was "land" not "lan."

A reaper would take a " land " in a cornfield, which was about 6 feet across, and work down the whole length of the field, the woman reaping her half-acre a day, the man his full acre.

THE COLOURIST WINTER

In painting the woods winter is the subtlest of colourists: its supreme pictures excel those of autumn and spring, still more do they excel those of summer. The painted woods of January do not appear to burn with those live hues, spirituous fires, that touch the April woods before the red buds unroll to green leaf; and they show nothing like the complexity of colour that lights up the beech, birch, and, above all, the oak woods in October and early November. Moreover, for weeks at a stretch there may be little colour on winter woods, only the subdued greys and browns of the bare stems and the tree trunks: whereas the colour effects of autumn last for weeks, and are good to see even on the worst days and in unfavouring lights. But there are certain afternoons in winter when great tracts of woodland do appear in a more wonderful dress of colour than they wear at any other season. Many of us know well the dress of the great beech and oak woods of the New Forest—around Lyndhurst, Sway, and Ladycross—in winter. I think it was Wise, in his book on the New Forest—the best of New Forest books—who wrote of the blue dress of the woods in winter; and, indeed, they often appear almost a pure blue—not merely the purple

of distant landscape. In May one sometimes sees an oak wood in a hollow that appears red—almost bright red in some lights.

Yet neither of these effects is so fine as the colouring of some Sussex woods in January. From Horsham many miles eastward there lies what is still a large and almost continuous forest. It has various names: St. Leonards, Tilgate, Worth—and I suppose Ashdown belongs to the same group. But doubtless all this country of clay and sand was clothed by one noble wood. In the hollows—some of them deep combes with trickling streams—and up their sides are beech and oak woods. When the sun slants on these woods half an hour before its setting they are suffused with a pink tinge. The effect is transient, it is over in less than half an hour, but whilst it lasts it is the most splendid woodland colour scene I have seen—and I have watched the colouring of woods all my life.

We must be above the pink wood to get the colour, and look from the sun eastward to have the full measure of it. I saw the whole face of a beech wood, fifty acres of it, presented in this colour. The evening was clear, and at sundown the west lit with the broad bands of afterglow which are ranged on the sky some evenings almost as definitely as the colours of the rainbow.

BULLFINCHES

The bullfinch may be growing scarce in some English places where once it was common, but in

the districts where I have spent much time it is always familiar. There are goldfinch districts, and there is one district where the goldfinch, after the linnet and the greenfinch, is the most abundant of the finches. It might be unwise to name the spot, but I am sure of what I say, for it is borne out by a friend who has a wonderful eye for birds. I think he would also say that, in this singular district, as goldfinch is commoner than chaffinch so is cirl bunting commoner than yellow hammer.

If I go there at any time of year I know I am quite sure to see goldfinches in pairs or parties, and I shall hear the "bubble" of a cirl bunting. But for one goldfinch stronghold there are a hundred bullfinch strongholds. In Sussex the bonny bullfinch is as common as in many places in Surrey and Hampshire. His soft, charming call that, like the redbreast's strain and the ringdove's coo, has the plaintive note, is constant through the winter—far more constant than the "pink!" of the chaffinch.

I dare say the bullfinches are among the half-migrants, and that many wander from their spring and summer haunts. But so many remain faithful to the same favourite spots throughout the year that I call them sure "residents." The bullfinch in his fondness for a woodside land reminds me of a campanula—the nettle-leaved bell flower. He is a true wood-finch, truer than chaffinch, greenfinch, or linnet, but I think he is still more a bird of the woodside lane. In some tall and rank strip of hedge

between deep wood and damp lane he is in his element.

It is in winter that the bullfinch is so effective ; and one of the best bird sights of the season in woody districts is half a dozen bullfinches bounding in and out of the great hedgerow in front of us as we walk along the lane. There is a glimpse then of lovely rose breasts, and the blue-black and white of wings.

The white on the back of the bullfinch is exactly like that of the house martin, and it reminded me, too, of the green sandpiper, " martin-snipe," as I have heard village people call that strange wanderer. What service do these very striking white patches on certain birds render ? I think they must have some definite meaning.

Another favourite haunt of the bullfinch in January is the larches. Larch twigs hold plenty of food for titmice and goldcrests. The needle-pointed beak of a goldcrest should be the very instrument to pierce and draw minute insect food from these stems. The blunt broad beak of the bullfinch does not seem well fitted to the same search. Yet the bullfinch clearly finds food in the larch. His way of gathering it is utterly unlike the goldcrest's way. He never hovers, nor darts and flips in and out among the twigs. Nor could he swing about like the long-tailed titmouse or the redpoll. He reaches upwards and outwards from a steady perch, and with slow and lazy-looking action takes his food, whatever it be, off the stems. There is little of the

pecking action in the way the bullfinch takes his food. It is more as if he nibbled gingerly at the twigs.

The bullfinch at times is a vegetarian. His bill is a bill for buds. Perhaps some of the food he seeks in winter lies in the moulds which thrive on tree stems. I believe the long-tailed titmouse has these queer dishes on its winter menu ; and the bullfinch too may have them.

KINGFISHER AND CHAFFINCH

As winter shows off the bullfinch better than any of the seasons, so it shows off the kingfisher. The kingfisher is hardly English in its jewelled splendour. It is like a bit of Tropic life among our quiet-coloured birds. But this is noticed most when the stream-side is all grey and brown. There is a spot by the river Itchen where I have several times seen the kingfisher in winter, and the contrast of this live, flashing gem set in the wilted and ragged reeds and ruined tangle of the river banks is splendid. It is the same with the kingfisher by many English waters in winter.

In Cowdray Park, in January, close to the ruins of the old house, I saw a large flock of chaffinches. There must have been quite two hundred, and all that I could see were male birds. This careful separation of the chaffinch sexes in winter is an odd fact in Nature. We have no explanation for it. The chaffinch flock is a lovely thing to watch. The birds are full of easy motion, and it is good to

see those white-barred wings tossing through the air. They are full too of play and spirit, ever en-engaging in those hot little chases so characteristic of the chaffinch later in the year, when his breast begins to burn with colour.

GOLDCREST AND THE TITMOUSE TONGUE

It is not often one can *see* the mite of food a goldcrest or a long-tailed titmouse gets by one of its sharp, sure pecks. One must take it for granted; and the same with the brown wren in the hedge bottom. But now and then one may actually see the grub in the goldcrest's bill. I saw a bird flit swiftly to the end of a drooping branch of pine and, hovering there an instant, sweep a thin caterpillar off one of the needles. The grub was green, matching the needle, but at close quarters, I imagine, no matching in colour, if in form, could cheat that piercing sight of goldcrest. Colour and form mimicry do often shield an insect from a bird, but not at close quarters. Within the radius of a foot or two the goldcrest eye brings all under a magnifying glass.

Watching the movements in winter of the titmouse and goldcrest flock, one is more and more impressed by this magnifying power. The sight of a goldcrest is acute as its cry. The thrust of its exquisite little beak is as needle-sharp as its call.

I often wished to make a vocabulary of all the notes of these small bird flocks of titmice—five kinds

—goldcrests, and tree-creepers; but the difficulty would be not to collect them all—it would be to get even a fair number of them into syllables. Many are quite beyond our power to pronounce. The note of the long-tailed titmouse is perhaps hardest of all the titmice to syllable. It has three distinct notes, uttered as the flock moves from tree to tree. Most frequent is its tiniest, lowest sound. This is not at all like many bird sounds, but a soft note, somewhat like " tat " or " chat " ; little more than a whisper, so faint is it, even though the bird is close above one's head. It reminds me of the notes of the lesser whitethroat fledglings following their parents in the July woods. Now and again this " tat " or " chat " is exchanged for the familiar call of the long-tailed titmouse—a note impossible to spell, but perhaps a little like " tchar-r-r-r-r "—certainly with a drawn-out or dwelt-on r sound at the end. The third is the quick, lively cry of " zee-zee-zee," which I notice more often during the nesting season than when the birds are moving about in flocks. This note can be syllabled.

Watching the titmice flocks often in the winter, I have never been able to translate these three distinct notes into distinct meanings. They may have different meanings. One might be merely a note constantly sounded to keep the flock together; another might announce a good " find " of some kind of food and be an invitation to the flock to come and share in it. But we can only speculate, we cannot discriminate for sure between the notes:

THE ROOK AND HER TREASURES

and I doubt somewhat whether, distinct as the sounds are, they are used for distinct purposes at this season. They may be synonyms, little more. There seems to be little or no method in these titmice, goldcrest, and tree-creeper flocks. They wander leaderless, going hither, thither, through the woods just as chance will have it.

THE WINTER HEATH

In the bitter, punishing cold of a frosty winter afternoon I know scarcely any spot finer in its stark way than Lymington or Beaulieu Heath. The sun, free of all cloud form, goes down a globe of most fiery orange to an horizon of bluish vapour ; and a few minutes before it touches the dark earth line the scene on the heath is primæval and splendid. All the little bogs or oozy places amid the heather are fire and ice for a while. If by chance on such an afternoon Hatchet Pond lies between us and the sun, we may get the finest New Forest landscape of the year. Part of the pond is now covered with ice, and, reflecting the sun, it makes the orange fire dance and glitter with wondrous glory. The path of the sun across ice burns brighter even than the path of the sun across the sea. And how the swart humps of Beaulieu, " barrows of the happy dead," show up at such a frosty, fiery time !

XI

THE EIGHT OF FLIGHT

I HAVE often touched on the way in which, in natural flight, flight of bird, bat, or insect, the actual direction of the curve of the stroke is masked. No matter how slow the flier moves, we cannot gain by eye any notion of the true trajectory of its wings. There is no tracing of the path of the wing for the eye to flash to the brain. Only once, whilst watching gulls striving to hang stationary in a stiff breeze, and very close to me, have I managed to get an uncertain glimpse of the screw-like working of the wings—that screwing and unscrewing on the air in which Pettigrew believed. But I have seen beyond all doubt the actual figure of eight—a figure which is as the very hall-mark of natural flight. Mr. E. C. Malan made me an exact sketch of this figure as he and I saw it at Durley Chine on November 24, 1908, and the sketch lies before me as I write. The bird was not of Nature, but of artifice; but I doubt not the figure is the same in both. A very stiff breeze was blowing along the shore from the west at the time—so stiff as to raise the dry sand in curious little sinuous lines and whirly puffs and drive it along a foot or two above the surface of the strand. My friend flew his large artificial bird a few yards

over my head where I lay in a deck chair; and looking up at the hind margins of both wings, I saw with the utmost distinctness that they were continuously cutting in the air the figure of eight.

The eight was flawless, unmistakable, though its loops took a spindled rather than rounded form; and that loop or segment of the eight which appeared on that end of the wing further from the body was much the larger. I called my friend's attention to this perfect figure, and he could see it clearly, though, as he was flying the bird with the anterior margin of its wings nearer to himself, he was not so well placed as I was. In the sketch he has drawn for me, Mr. Malan makes the larger segment of the eight three times the size of the other. This disparity in the size and length of the two segments is the only difference between our figure of eight in the artificial bird hovering (held in position by a line) and the eight which Pettigrew and Marey by experiment found that the living bird or insect whilst hanging stationary in the air must cut.

We watched for half an hour or so the cutting of these eights, and hoped to get a photograph of them ere long, but between November 24 and Christmas there were only one or two days at Durley Chine when the breeze was strong enough on the shore under the cliff, and on those days the light was not good. I should say it would be easy, with favouring breeze and light, to get a photograph of the eight. The eight, being flapped by that part of the calico

which represents the ends of the primary and secondary feathers on the hind margin of the wing, is described horizontally in the air, much as some insects' wings which move more or less horizontally would describe it whilst hovering in space. I do not think that Pettigrew or Marey ever placed an eight there in the hovering bird or insect. Their eight—the eight they discovered by a delicate test with a little revolving smoked cylinder—was cut, not horizontally, but vertically. The tip of the wing cut it, not the hind and very elastic margin of the wing.

Have we then two eights, a vertically and a horizontally cut one, in the bird or some insects spinning stationary in space ? Mr. Malan's artificial bird seemed to me a fair imitation of the natural bird. The bone that runs along the anterior or front margin of the natural wing is represented in this artificial bird by a light piece of cane, and a framework of cane stiffens the whole upper part of the wing. The calico below this answers fairly well, I should say, to the fine and pliable hind margin of the natural bird's wing. Of course, the imitation bird or kite wants the body and weight and all the wonderful machinery of muscle which are in the natural bird. Released from the line, it would be utterly powerless against the wind, and would have no balance. It would go where the wind carried it, and would suggest nothing to us about the mysteries of air and of the mastery of the air. It is only suggestive through captivity. Yet it yields to the

eye what the eye has never seen, never will see in any live flying thing—the figure of eight, the principle of which seems to be, for natural flight, a key of the air. In shorthand write an 8 for "flight."

XII

FLIGHT IN STORM

A STORM blew on the South Coast, bearing with it those incessant, gliding sheets of fine rain or mist-rain which often appear to contradict the weather vane. The wind may be blowing from the south and south-west, yet the diaphanous veils of mist-rain seem to be scudding over the cliff towards west or north-west. I do not know whether this is an optical illusion, or whether the wind, striking the sides of the high cliffs and thence thrown upward, is at the cliff edge sucked for a little while out of its normal course. At any rate, the mist veils appear to be moving against the drive of the wind.

But how much more striking the contradiction which the upborne sea gull offers to the rule of the gale! The gale drives in hard from south or south-west, and the gulls, searching for food sprinkled on the lashing white breakers on the strand, move backwards and forwards above or level with the edge of the cliff. It makes, so far as I can discover, absolutely no difference to them—at this height—whether they are moving west (more or less with the wind) or east (largely against it). All that seems necessary for continued and easy progress is some swaying and balancing action in the storm. The

gull glides with wings full stretched or with wings half flexed. Say the glide carries the bird twenty unresisting yards; it carries him smoothly, and without the least action of the wing or change of its tilt or plane.

After that some energy is needed, or, it seems, progress would be stopped and the flier flung out of the course he wished to pursue; but this energy, so far as I can see, never takes the form of a full or a half or a quarter stroke of the wing. There is nothing like a stroke. What the gull does is to change the tilt of the wings. He alters the plane, and, entering on a new one, is carried forward with a fresh series of smooth effective glides.

Amid these glides and this plane-changing there are some little movements, hard to describe, which suggest the balancer. It is clear to me that very often the wind is on the point of getting the better of the flier and sweeping him far out of his course. Yet, practically, the wind never does get the better. He rights himself with consummate ease. It is automatic ease—or is it not something surer even than this?

As I watch this feat, the strength and grace and ease and sureness of which are above all words of praise, it seems to me a black-headed gull can no more fail to keep his course than water can fail to find and keep its level.

Must it not be this—the wind has fashioned the seagull's wing? Planned, drawn, cut, tapered it to the precise form that is needed to defeat the wind?

I think the marvellous wing of the black-headed gull was never moulded and cut in a still air. It was carved out in no calm. The storm was the craftsman of it. The wing of this bird was born in opposition.

With the gale striking them hard from the south and south-west, the black-headed gulls drift and glide, chiefly sideways, to and fro high above the breakers; their heads point into the wind as the kestrel's head points when the kestrel is hovering. But there is this great difference between the two feats: the kestrel's wings or wing tips pulsate, work right into the wind, whereas the black-headed gull's wings do not pulsate at all; they are kept rigid for a quarter of a mile's motion sometimes, till the tilt of them and the plane of flight are changed, and the bird enters on a new long glide or drift.

But presently the flier through the driving rain and sand storm—for the wet sand is often whipt up by the gale and whirled about the strand and cliff-edge—will see some bit of food on the breakers far below. He will drop in an instant and waver over the lashed foam; and there is an end of his drifting or gliding. Instead of riding and resting on the gale above, he is fighting with lesser winds below, just over the face of the waters. His wings are doing their utmost, full, strong, up-and-down strokes as he screws and unscrews them on the air.

He has fallen from the glorious poetry of flight to its plain prose.

There are gales, we know, in which land birds,

even strong-winged birds like the hawks, are almost powerless. Small birds will hustle and huddle away from these storms, hardly daring to take the open, though danger from man or beast threaten them ; and I suppose there must be storms in which even a gull, albatross, or petrel cannot live and move with comfort. But in lesser gales, which overwhelm many land birds, the herring and saddle-back gulls and this much smaller black-headed gull move and rest with perfect ease.

It seems that the more the storm lashes and rages above, the easier these wondrous fliers ride it. Not only does this madding wind never throw them, but they even control it largely—go whither they will on it.

It is only when the black-headed gull drops to the surface of the sea that he need begin to struggle, or, at least, labour somewhat. It is when he gets into the shallows of the air that he loses his ease.

It is in the storm depths and heights that he moves supreme.

In these high gliding and drifting exercises of the black-headed gulls along the coast in storm I do not imagine the screw of flight can be active. I feel sure that in ordinary aerial feats, in straightforward flight of birds and insects and bats, and in the hovering, figure-of-eight feats, too, the action of the wing is screwlike—twisting ever on itself, screwing and unscrewing on the air. Whenever the whole wing beats, or the wing tip beats in however small

a degree, the screw of flight is at work. But not so in these feats of the black-headed gulls riding high through the storm. Here it appears to be all a matter of inclined plane and momentum.

THE SNIPE'S DRUM

Is this figure of eight cut or unravelled in the curious sidewise action of a snipe during its drumming or bleating exercises ? This point is raised by a letter I had from Mr. Malan. He tells me of some letters lately about the drumming of the snipe. According to one writer the bird has fourteen tail feathers, of which the outer pair, spread at right angles, give rise to the sound made in its oblique descent by the quick vibration of the inner webs. Further: " Mr. T. H. Bahr, in a paper published June 12, 1907, gives an interesting experiment. Pierce the shaft of each outer tail feather of a snipe with a pin, and insert the pins on each side of a small cork, so that the outer web of each feather (the narrow edge) faces the same way. Fasten the cork to one end of a stick six inches long, and fasten some string to the other end of the stick. Whirl it round your head. The drumming sound is at once set up." This device is new to me, but I know a similar device—the ' bull-roarer ' of Australia, just a flat bit of wood, which, whirled on a string, works in the same way. It is the inexorable figure of eight in both cases." I have not tried the device with the snipe feathers ; but I have with the flat bit of wood and string, and, though it is hard to follow the course

of the wood through the air, I incline to think that Mr. Malan is right, and that the wood may travel in a series of unravelled eights. If so, however, the eight-like action is by no means so clearly seen as when cut in strong wind by the hind edge of the hovering artificial bird.

Is the drumming of the snipe done by the tail alone as these witnesses say? I believe it is not. I gave an account of the exercise after watching it in the water meadows near Romsey, and I see no reason to alter what I wrote: "The sound is made by the descent of the full stretched wing acting on the resistance of the air . . . Without the aid of field-glasses, we can often see the full-stretched wing vibrating as it cuts down, and the sound synchronises exactly with this clearly seen tremor of the wing. I have distinctly see the jar of the wings within the last few days, and this without expecting or looking for it. Whether the tail jars too, I cannot say. Some people suppose that the tail makes the sound, but at most, I should say, it is a contributor. The fact, however, that the tail during the drumming descent is full spread, fan-like, does not argue that it causes, or even contributes to, the sound. . . . All birds carry their tails spread out to the utmost in these sliding, gliding descents. I believe, but am not quite sure, that, as it comes down, the snipe cuts through the air sideways—the wings point, one earthward, the other skyward, like a gull's after one of its 'rolls' in the air. The drumming descent is over quite a short course. It scarcely lasts more

than three or four seconds, and seems to vary very little, if at all, in length."

The clearly seen vibration of the full-stretched wing tells its own story: there must be sound—plenty of sound—coming from this action; and what can this sound be but the bleat or drumming? I cannot understand how any one who has watched the vibrant wing of the descending snipe—and who knows what commotion and sound a stiff feather attacking the air will make—can doubt this.

Do the individual feathers of the wing—and also, perhaps, of the tail—in making the sound, cut through the air, I wonder, with an eight-like action? I think it quite likely they do, and if we could but trace their course we should see signs here, too, of the "inexorable" figure; for a feather is twisted on itself as the whole wing is twisted.

THE RARER MUSIC

There is something in the late autumn and the winter music of birds, slight though it be, that is entirely charming. Perhaps the appeal the song makes to one in autumn is even more than the appeal in the winter, for in autumn we seem so very far off from spring. It is especially so in hours of illness. I know I have managed to get good out of the songs of two birds when, through illness, scarcely anything else in Nature has seemed good—"life a fury slinging flame and time a maniac scattering dust."

I have got it especially through the missel-thrush and the delightful little cirl bunting. The missel-

thrush sang earlier in the autumn of 1908 than ever I heard it sing before. It was singing a little in that noble oakwood, Alice Holt, by mid-October. The cirl bunting I had long known as an autumn singer, so late as November in a garden in Hampshire ; and I was pleased to find it in a Surrey village where I had never looked for it. It came eve after eve, and gave forth its clear, bubbling note at yellow sunset, just when the mists were mingling with the dusk. Each eve it seemed to sing from the same spot in the hedge ; but in daytime I heard it once or twice singing from one of the poles in the shoddy-looking used-up hop garden.

It is curious to notice that something in the dusk and calm of damp eves sets the cirl bunting singing. It is not so late as redbreast or thrush, but more certain and precise than either in its hour and in the spot it chooses. You may look at the clock, and remark that it is time for the cirl bunting's "good-night," and at that minute the note begins.

WOOD SORREL

As February wears on there are sundry small signs in the green world that the harsher mood of winter is relaxing : I know of none more exquisite on its minute scale than is in baby leaves of lesser celandine. Leaves that live through the winter are rather shabby leaves by now. Thus the ground-ivy leaves, never of the liveliest green, are dusky in February. They look as if they had taken little food from winter air and sun. The goosegrass has

many a short trailer of small leaves to show in the hedges throughout a mild winter; and these again look somewhat weak and pinched.

Then there is wood sorrel, which often wears green through the winter. I have seen many plants of wood sorrel in leaf in February, and in some places it keeps so through the winter: among the dead hazel and oak leaves and the mosses in the woods our sensitive plant is quite lively and safe through December and January. There is the same irregularity among its leaves on wet, dry, cold or warm February days as in the summer: where one leaf of a sorrel plant is lying flat and full open, another is inclined to shut; whilst a third is quite closed.

The wood sorrel leaves look fairly fresh in February, but neither they nor any others I have seen—not even cow parsley's—have the lovely brightness of the leaves of celandine. The spot to look for these tiny things is a bit of almost bare ground under trees about the house. They are high polished, and at this stage some of them appear almost heart-shaped. Each leaf pushes up in the form of a neat little roll, as of parchment. We see this where only the tip of the leaf has as yet got through the top soil. But, by the time the tiny leaf is free of the earth, the whole is unrolled. The lesser celandine, being a very early flower, will thrive under massive trees; for by the time the tree leaf is thick, celandine's blossom time is almost over, so that it no longer needs the strong sunlight.

THE LINNET

No small singing birds is more persecuted by the trapper than the linnet, and yet, taking England as a whole, no bird perhaps is commoner. A constant winter hunting ground of the bird-catcher is the saltings between the low shingly islet and the harbour. I have see him there hammering in the stakes that fix his wily nets. The saltings being no man's land, and hid in a lonely corner of the islet, he can work there without interruption. Perhaps the only other figures within sight during the whole of a winter day will be two or three forlorn searchers after crabs or bait for sea fish on the great gleaming flats when the tide is out ; and these will be kindred souls, sympathisers with him. The man trudges eight miles or more daily to and from the saltings, carrying on his back the box for the wretched captives ; and when the passage between the islet and the mainland is rough he may have to wait the best part of an hour for the ferry boat. The ferryman, like the crab catchers, may be a sympathiser with this hunter with nets and sly snares, but he is not going to cross the choppy water in a high wind just to oblige a twopenny fare. So in rough, wet weather the bird-catcher's trade is hard enough. He who makes the small birds to suffer is not without suffering of his own.

In open weather, he complains, it is scarcely worth a man's while to visit the spot. Goldfinches are now forbidden him throughout the year ; and,

unless frost drive various birds to the saltings, the best he can hope for is a few linnets.

No doubt our home linnets are added to by Continental linnets in autumn, as are our skylarks, robins, and rooks. But it is not only in autumn and winter, it is through the year, that linnets abound in England. What bird in the furze commons and thickets, and the hedges and lanes of the South or the Midlands, more familiar than a linnet ? I know of none, and I find the linnet almost everywhere, as I find the wren.

He is not a wood bird, yet during the winter I often see a pair of linnets roaming the woods. I see him there now and then at roost time, and sometimes appears a sprinkling of linnets among the loose shower of small birds and thrushes and blackbirds which scurry by the guns in the wood when the line of beaters begins to draw near. But the furze common, the great tangled clematis lane, and the garden and shrubbery are the chief haunts of the linnets through most of the year.

We carry about with us many pictures of birds ; little incidents illustrating bird spright and flight and song make an impression on the mind that lasts. Few bird scenes have impressed me more than the linnet scenes. The linnet in spring and summer has a certain sweet vivacity all his own. The goldfinch, perhaps, approaches the linnet nearer than any of the other finches in this, but he not quite equals the linnet.

The linnet lyric is a gem. It may be snatchy and

irregular, but it is at once gay and tender. It has a sort of friendly strain. In singing to his mate—and the linnet, unlike many birds, does seem to lay himself out to sing simply to her—it is as if the linnet were half talking to her.

In spring the two are always together, and if the male bird does not help to build the nests—there are several nests in the season—he is always on the spot during the building, and later will help to brood over the delicate tinted eggs. The male linnets are full of chivalry and high spirit, though not quite that rage appears in them that inspires the fiery chases of the chaffinches in spring. They are always on guard whilst their mates are gathering nest material, and they have a beautiful carriage—no finch is so upstanding as the male red linnet in spring and summer.

He makes a lovely picture with his crimson crown as he sits on the top twig of the clematis or the whitethorn roadside hedge.

A wonderful small bird scene in a great linnet neighbourhood is when a flock of many hundreds gathered in a hedge in late summer or early autumn suddenly breaks into song—the linnet "charm." But perhaps the choicest linnet sight is on a very small scale—when a pair comes down in the hot summer morning to the garden and sip from the natural well of pure moisture in a cabbage leaf. A pair or two of linnets is a dainty addition to a garden.

THE MARVELLOUS REGIMENT

Standing on the warren or the salt swamp, my back to the sun and the sea, I am struck by the blueness of the water at the estuary. A brighter tint of blue could hardly be. It has none of the deepness of a sea blue in June : it gives me the idea rather of a very cold and shallow colour, but it is intensely bright and glistening on a February day ; and under a cloudless sky, the tint is the same for hours together.

Set here and there amid this sheet of unvarying February blue are the long, perfectly even lines of pale yellow reed stems. Here, too, the tint is unvarying. These stems, tough and wiry, easily outlast the winter ; were it not for the competition by and by of the fresh stems, they might last even for two or three winters. To yield to every whiff of wind which sweeps over the estuary is the chief secret of their staying power ; in Nature there is the staying power that comes through bending, not less than the staying power that comes through the unbending quality.

It is thought to be the same with men ; an Elizabethan spoke of the first of the great Paulets of Basing as holding his high office so long through being not an oak, but a willow.

The reed is finely fitted to the estuary life. Despite its slender build, it is not broken nor are its flowering and seed heads water-logged by the violent winds at the mouths and bars of rivers. Close

clustered though they are, and collectively of a great weight when green and full of sap, the stems, bowed to the brink of the water by the gusts, always recover their uprightness. Their elasticity saves them from wreckage; and even in February, long after their work has been done, they stand upright as ever, and so thick in the greater beds that they can hide a bittern from the view of many a man who passes within a few yards. An old waterman who has often seen bitterns about the estuary and at the ferry a mile above the tide pointed out to me a reed bed on a tiny eyot where in winter he had known a pair of bitterns hide themselves from many passers-by.

This bleached yellow of the reed is, with the intense sparkling blue of the water on a very bright February day, the chief feature of the estuary scene. But there is a third feature, striking and very beautiful—the pure white of the host of birds scattered over the water and the mud flats. The swans contribute the larger patches of this white, but the gulls and the dunlins, when we stand with back to the sun, all appear as snow-white birds. A great assembly of gulls, black-headed, herring, and common gulls, suddenly flinging itself into the air over one of the mud flats half a mile off, is glorious to see! At this distance and in this light, it is like a snowstorm of very large, soft flakes. We say snow-white to express our idea of the utmost whiteness; yet we might as truly say gull-white. Nothing ever appeared whiter than one of these gulls on a

bright February day over the blue water: the pureness and shine of it are splendid.

Dunlins at their exercises usually pass swiftly from white to grey, and almost to black, changing with each precise swerve and cut. But at the estuary I saw the dunlins cut an entirely white figure. Of all dunlin effects that I have seen this was the most strange and lovely. They rose in two parties from the harbour bar, and keeping a few feet above water, zigzagged up the estuary for a mile. Then they swung round, and, still travelling low, zigzagged across the warren and round the edge of the great headland, and so out to sea. Here I lost sight of them. The strange feature of this course, in which the dunlins rioted in speed, was that the birds appeared throughout as shining white, even after they had swerved round at the close of their course up the estuary and torn out to sea.

A long, narrow ribbon of pure white specks moving at highest dunlin speed over a course of a full mile and a half, with a second ribbon close on the wings of the first, is something to see!

I marked the gulls at the moment of the dunlin start, tumbling about as a fall of large snowflakes over one of the eyots, and saw that a moment or two later the dunlins must pass between me and the gulls. And pass the whole of both marvellous dunlin regiments did, the white specks travelling clean across the snowflake fall of gulls in the further distance; though, through the high pace at which the dunlin lines shot across them, the

specks were never, to my eye, mixed with the snowflakes.

I have so often watched dunlins in late winter and early spring that I begin to think I have seen the best of their dazzling feats of wing. But who could tire of dunlins a-wing ? The riot, yet the regularity, of these feats is entrancing. I never pass in the train an estuary without looking for a sudden flash of dunlins in wild career, and I often catch a glimpse of them thus. What restless spirits ! I doubt not it is on the wing and at top speed that they taste the joy of life to the full.

THE GREAT BLACK-BACKED GULL

The estuary under the headland* has other birds in February besides the restless dunlins and those blackheaded and herring gulls that are ever rising from the reedy eyots and falling like soft snowflakes through a still air. I saw the great black-backed gull there, which a-wing has some of the majesty of the golden eagle. This noble bird has a flight which, like the swan's, looks laboured and quite slow. He cheats the eye through his size and the easy, deliberate action of his wings ; but I suspect that, were a dunlin set to race the gull over a long course, the little bird might soon be left behind. The nimble dunlin could start far more quickly, and hold its own over a course of a few hundred yards, but, once the great wings of the gull were set going, size and momentum would tell. Rolling about,

* Hengistbury Head, Christchurch.

with or against the wind, over the estuary, the great black-backed gull on a bright February day is a grand figure. There is no mistaking the adult bird for any other gull! the difference between him and the lesser black-backed gull, which I watched in the nesting time over the terrible cliffs of Trevalga, is too marked for confusion.

The great black-backed gull at the estuary appears to be in full dress. Like the herring gulls, he looks snow-white at a little distance, save for the back and the upper sides of the wings, which are jet in the sun. These wings uphold the heavy bird and work with eagle ease. I have not seen the great black-backed gull soar like the herring gulls in a stormy air, nor have I seen in his flight those miles of mazy motion which make the saddleback so glorious to watch, but doubtless he can ride the storm as easily as any of them.

His action in the air is utterly unlike the action of the swans, which are constantly in the air moving, nearly always in pairs, from one part of the estuary to another. The swan style is a straight line of regular and monotonous flight. The swan attacks the air by full strokes or flaps of the wings, each stroke like another, and each appearing to be—what I am sure it is not—a simple, straight, up-and-down stroke. At hundreds of yards' distance, when the air is still, one can hear the creaking or girding of the swan's strong, regular strokes: whereas one must be quite near to catch the least sound from the great black-backed gull.

There is friction when the swan takes the air: but the gull winds and screws and unscrews its way through the air without seeming to meet the least opposition.

I doubt not the mechanism of flight is identical in swan and gull, as in eagle and in tiny goldcrest or humming-bird, but it is hard to realise this whilst the eye is arguing the other way.

THE SPOILING OF LIGHT

More light is but another way of saying more life. It is this which chiefly accounts for the pleasure we find in the lengthening day of February or early March. The source of this spring is deep and untainted. It is the same with plants and all forms of life save those that flourish in the blind hours of dusk and dark. How to get our fill of light should be one of the supreme questions. One idea is, that we should by Act of Parliament play at the hour being earlier than it is really is. By turning on the hands an hour or so at chosen times of the year we are to act up to the command of "Let there be light; and there was light." It seems odd to carry out an elemental law by trifling with a timepiece. But anyhow, it is idle to do this unless we are ready to act up to the spirit of the next clause—that of dividing the light from the darkness. What good end is served by a man rising earlier if he only rise to whole days of darkness? No one who spends his life between the absolute country and London can fail to know that darkness and light through a great part of the year

are no longer divided. They are inseparably blended sometimes for days and weeks together. It often happens that the night is, if not lighter, far purer than the day ; we may see blue sky one night, where the next day we can see and breathe only murk. It is vain to think of dodges for " saving " the light before we have divided it from the night.

The daylight saving we need so greatly has to do with smoke, not the timepiece. I think few people realise how far these City fogs travel. Over fifty miles from London I noticed for years a blackness in the air, high overhead, on days when wind came from the north-east. This blight blotted out the sun during hours that should have been clear and fair. It was city fog. I doubt whether places sixty or seventy miles from London are always safe from this hateful miasma. Before allotting ourselves more daylight, we should take care that the share we get now is of good quality.

XIII

CHAFFINCHES IN MARCH

In the song of one chaffinch is more feeling of spring coming than in the songs of many thrushes. This song, immediately after the spell of bitter days and nights, is a song of joy, of relief. Through the snow and frost no chaffinch gave a song note, only "pink, pink!" The thaw comes, and after a night of wringing wet the morning breaks warm and sweet. At once the chaffinch is in full song for two hours or more.

How good it is, on hearing one's first chaffinch just before breakfast on a clean, clear morning, to look out of window and see him taking his song survey! If he began somewhere mid-way in the spruce or deodara, and is out of sight in its thickets, he is sure to take his dipping flight presently to the topmost twig of one of those or a neighbouring shrub, and strike up there instead; for the chaffinch prefers for his song a twig, exposed and prominent—a perch of vantage, where he can see and be seen by chaffinches.

Without the refined build of the warblers, or the rare colouring and spright of the redstart, the cock chaffinch is yet a lovely bird. That lead-blue cap, those white-barred wings, that living lustre, chestnut

lustre, of his breast, present the chaffinch to me, March after March,—for March seems the chaffinch month—as a thing perfect in beauty.

We cannot grow used to the perfection of chaffinches.

In May and June we may begin to overlook them in the large competition of bird life; but in the early days of March we find him again, fresh, lovely as ever.

At its best, in May and early June, a chaffinch's song is better than it is in March. Yet, as melody or music pure and simple, I doubt whether the chaffinch's ripple has merit to speak of. It is not the purely musical part of us that is stirred by the song: take away the charming idea of the bird, the sight of it; take away its environment and the delicious sensation of the early spring mornings, when it first breaks into its ripple, and little of worth remains. It could then wake no emotion in the listener.

DUNLINS AGAIN

The low, windy islet is a favourite spot of mine in early spring. In three out of four years I have gone there then and watched the wheeling of those wonder birds the dunlins. One May I saw the sandpiper passing through the islet on its way to nesting grounds further north; another year several terns were playing with their consummate grace over its beach for a few days, great white butterflies of the sea. With its whole southern shore steeped

in sun a full eight hours each day—sun that I stood and steeped myself in at nine in the morning—how can a February or March day on the islet be called by another name than spring? Hot sun straight from the sea on such a morning gives the finest open-air sensation in the world. An exaltation is in it.

In this sun I once more went along the shore to watch the dunlins' dead-perfect drill in the air. In the morning they are always near the same spot. They haunt one of the old sand and shingle beaches that gently rise tier above tier from the sea at the south side of the islet. There is no food for the dunlins at these barren spots. Only a few skylarks and stonechats seem to find food here. Some of the tiers are all pebbles. Others have a very thin layer of sand soil, where the pebbles are lichened or moulded, and there is a wizen vegetation of sandworts and sea purslane, with Danish scurvy grass and lichens that to the touch are dry and dead as artificial leaves. Here the dunlins are on the wing, going through the drill.

The moment of all in this feat of flight is when the whole dark regiment of wheeling, cutting, hanging birds suddenly turns into a light, almost snow-white, regiment!

Even natives of the islet, men or boys who care little for the birds, know this sight well enough, and will tell a stranger to mark it in the sunlight. It is made by the flock presenting to the watcher the breast and underparts and the under coverts of the wing during a swish round. But, though this is

the moment of moments, each moment of dunlin flight is fine. Within three minutes we may see half a dozen wholly different formations. Now the dunlins are shaped as a spheroid. Next moment they may tower up into something like the column of dancing gnats.

I have even seen them present a figure that approaches that of a square. Then they are a long, fluttering pennon again! The opening out and drawing in movements of the flock are unceasing. If one moment the action is centripetal, the next it may be centrifugal.

All this figure cutting in the air is not the result of a chance disturbance of the dunlins by somebody intruding on their day haunt. They would go through the same exercises though no foot ever trod these beaches. When the flock is cutting and glancing in the delicious morning sunshine, one is tempted to think that pleasure in life and the warmth of early spring are the motives. Yet I have seen them thus lifted aloft in glorious action when the morning is grey or dark. Moreover, the starlings' exercise at eve, which reminds one of the dunlins, has nothing to do with sun pleasure. I cannot account for it. It is not sexual, nor is it sun motive. If we suggest that the dunlins are practising to keep up their flight efficiency, we are in danger of "humanising" them. Whatever its meaning and remote origin, I believe it has no relation to human drill.

So far as I have watched it lately, the exercise of dunlins is done in the morning, whereas that of the

starling host is done towards evening. The dunlin flock may repeat its exercise later in the day, but, going out to the old beaches at two or three o'clock, I have found the birds sitting and dozing in the sun, their heads almost buried in feathers, every breast to the breeze.

When first I searched for the dunlins in the afternoon, I feared I was too late—that they had already swung off to their feeding-grounds, the great, gleaming harbour mud-flats. For some time I could see no sign of them in the air or on the ground. But just as I was giving up the search, I saw spread along twenty yards of one of the beaches a sheet of what seemed, two hundred yards away, to be large pure white dots. The regular spaces between the dots told me they could hardly be pebbles. Besides they looked too white for white pebbles, which, on these old beaches, are always smudged by dark, flat lichen growths, a kind of mould.

Rather, they looked like a company of some short stemmed, bold flowering plants. They might have passed for snowdrops, were snowdrops large enough. In a garden I once grew large white anemones which bloomed in May, and the dots on the islet beach looked not unlike those flowers. Such a sheet of neat white dots, if seen on an Alpine field, would pass at a little distance for flowers. As I stood and watched, puzzled as to what they really were, a little pointed wing flung up, then another and another. I knew then that the white dots were the dunlin flock. A few yards nearer, and I could see other

trifling movements. At a hundred yards I stood and watched the dunlins rise in two parties. In a few seconds they were but black specks against the sky, disapppearing over the harbour a mile off in the form of a scrap of horizontal cirro-stratus cloud.

They were gone for the afternoon, and it was the same next day when I found a sheet of white on another ridge nearer the sea. If one contrives by very gentle movements to reach within about eighty yards of the dozing dunlins, the dark shades of their plumage, as well as the white—that appears so pure white in the sun—are seen ; and then the flock may remind one of an autumn gathering of pied wagtails in repose—if wagtails by day ever are in repose.

THE METEOR'S TRACK

Cloud and smoke at sea will often take fantastic forms of curl and wreath in the calms of sunset. But one evening there appeared in the sky over the dunlins islet a form utterly different from any I had seen before over water or land. At dusk, after fiery sunset and cloudless day, I saw to the south, struck across the sky, what looked like the streamer of some dread comet. It seemed to spring out of the sparkling belt of Orion. It began in a point or taper, bent down towards the sea at an angle of 45, and running into the constellation Eridanus.

It ended in a curled tail of several ends, like the hemp of the end of a thick rope untwisted. The colour was reddish, and it was not till I had looked at it through a pair of glasses that I could quite dissuade

myself that it was not some vast starry body. It was easy with glasses to see that there was no glow about this strange intruder on the realms of Orion. Moreover, it belonged clearly to our atmosphere, and was, I think, not very high above the sea. In a few minutes it passed through several changes in form. I pointed it out to other people in the house. They were sure it must be a comet; and were only shaken when they saw it pass into fresh forms. It was quickly thinned into a far more attenuated form than it had worn when I first saw it. The wispy tail began to fade. Parallel with the horizon, but now well above Betelgeux, the mighty red sun in Orion, it lay in a long, narrow, almost straight band; thence it bent down at nearly a right angle, and again appeared as a straight narrow band. At the end of this second state the disappearing tail could be seen twisted back again towards the Hare constellation under Orion.

A few minutes, and this form, too, began to wear out. The final form was a gigantic letter V, lying sideways across the sky, its point directed west. Now the light was failing, and at eight o'clock when I looked out again, not a trace of the V could be seen. Cirro-stratus cloud is worked up into fantastic forms, especially these horizontal, straight-line forms. Smoke from steamers, too, will hang about at sea in calm evenings, and wreathe itself into strange shapes. This must, I think, have been the train or cloud left on the track of a meteor; though of the meteor itself I saw nothing.

XIV

THRUSH AND MISSEL-THRUSH

At length in March the thrush is getting some real sweetness into its song. Now we are enjoying once again what Mrs. Browning had in thought when she made Aurora Leigh say, "And then the thrushes sang." It may partly be fancy, but I find that through the late autumn and the winter the song-thrush's notes are always rather hard—metallic notes. They want, to my ear, that pure and liquid quality which is so delicious in the thrush's song on a spring day or deep in the wondrous dusk of June. Certainly when the earliest song-thrush strikes up in September, or at the beginning of October, one is conscious of a most appealing note; but there the charm is, I think, not so much in the timbre, in the beauty of the note, it is because the bird has begun afresh after perhaps three months of complete silence: the source of our pleasure is subjective largely. These first irregular, casual bars cannot be so pure and melodious as those of full spring, for the performer is as yet untutored and unpractised.

So the charm soon lessens, and one hears winter lays of the song-thrush without being much moved; the quality of the piping notes seems hard; and I

am sure the typical thrush phrases are not worked up to anything like perfection. But by and by there comes a day in March when one stops to listen to a song-thrush which *is* sweeter and completer than any bird through the dull, exhausting winter.

As for the missel-thrush, I do not distinguish between the songs it sings in autumn, in winter, and in spring. It may be more voluble and excited on stormy spring days than on the quiet, sunny days which it so often chooses for winter song, but the difference seems to begin and end at this. The missel-thrush, though incomparably behind the song-thrush as a musician, is a better performer than Mr. Charles Witchell, the most exact observer of bird music, would allow. In his book, *The Evolution of Bird-Song*, he wrote of the missel-thrush as a bad singer. The missel-thrush is not that, but he is not in the same class with song-thrush and blackbird. He is somewhat vague and desultory. No thread runs through his lay. He has no true air to pipe or whistle, nothing that the memory seizes on. His notes are rather jumbled, too ; they want more definition.

Yet the piping note of the missel-thrush has sweetness ; and this sweetness is to be tasted by a listener all through the winter ; indeed, he sang, to my ear, as well in December as he sings in March.

The missel-thrush has the merit and the demerit of sameness in song. He is a mediocrist in bird-music who never sings a thoroughly bad song—as often in winter, a clattering, harsh-voiced song-

thrush does—but who never rises, as the song-thrush rises in spring, to a very choice distinction.

The missel-thrush being a shy bird, save when it lives at the outskirts of towns, is heard as a rule from a distance, and the song does not strike us then as very powerful. But, when we hear the song under the tree where the bird is singing, the effect is very different. The song is louder then than the other thrush's; it is as loud as the blackbird's perhaps at full strength. Just before writing this I chanced to hear the missel-thrush in a tree under which I stood, and I believe I never heard a blackbird sing louder. It is hard to recognise in these powerful, tumultuous notes the mild song of the distant missel-thrush in the woods or fields on a calm, bright winter morning. The missel-thrush gains sweetness through distance.

THE WIND'S PLAY

There is no time of year when the curious eddies of the air and the Pucklike pranks of the wind can be seen better than early spring. March is a month of whirly-puffs. The winds will often play the oddest tricks with fine dust on the highways and dry, dead leaves at the edge of the coppices. The game with the leaves is strangest of all. Leaves at the fall of the year are scattered, gathered, and whisked about the ground and air in a very striking way. They behave as though they had a wayward, wild will of their own, flitting, pattering, running races, slapping

smartly against doors and windows, wedging themselves into nooks and corners.

But it is in March and April that leaves are sucked up and whirled round in startling little journeys—leaves that have lain still throughout the winter. I saw one of these leaf excursions in a dell among birch woods. The leaves and dead undergrowth were quiet enough round the spot where I was standing; but, suddenly, a few yards away, a layer of dead birch-leaves, fifty or sixty perhaps, were sucked off the ground and drawn up as high as the tops of the trees. Their ascent was so sudden, they rose with such swiftness and decision, it looked just like the upspring of a flock of some small, swift birds startled into the air.

Though the ascent of the leaves is vertical, they are whirled round as they dart up, very much in the spiral way of the whirly-puffs of dust. The current of air which whisks and drives the dust and the leaves in this way in early spring is not a straightforward current. It seems as if the action of air never were straightforward. True, the gale may appear to take a straight course when we face it, blowing hard and clean at us. Yet, even with the gale, the irregularity of action is seen in the odd forms of wreckage and disturbance it leaves on its tortuous track. Probably the gale only seems to us straight when we face it because it strikes so hard.

The whirly-puffs of March dust may be compared with the clouds of fine particles of frozen snow jerked and driven along by violent gusts of winter wind, or

with those peppery little rushes of sand which sweep along at a foot or two from the ground when there is a strong wind at the seashore. The difference is that the snow is urged across the ground and the sand scarcely lifted clear of it. Neither is sucked upwards as are dust and leaves in March and April when seized by one of those freakish gusts. But much the same features of the curling and spiring round and round as they are rushed onward or upward are seen in all four cases—dust, leaves, sand, frozen snow.

Nor is this action seen alone in gusts or half gales. The smoke from a steamer at sea, in an air which we should call "dead calm," spires and winds about in a most suggestive way. Again, in the movements of the sea-foam—foam as it is carried off the wave edge at the breaking point, or swept clear of the water and over the glittering sand on the shore—we see often some such curling, whirling action.

Smoke, sea-scud, sand, dust, snow, and dry dead leaves, then, are all played with in much the same way. Finally, sky-clouds of all varieties, from the gross bulk of cumulus to the faery wisps of cirrus, often illustrate the same action of air and wind.

What exactly is this action? A friend deeply interested in flight has quite made up his mind. "When the air is in motion it becomes a series of cog-wheels." This is his main theory, and he is ready to argue why it is that the figure-of-eight or the waved-track—which is the figure-of-eight unravelled—is so operative in the work of riding on

and through the immense series of cog-wheels. He has drawn me a little sketch of the wings of the wind-hover or kestrel hanging in space—"The hawk in libration: anchored." The tips of the wings bite into the cogs of the revolving wheel, constantly as it turns, changing from one tooth to another. It is an ingenious idea, and curious, whether or not it persuades us. Any theory of a careful watcher is of use if it calls attention to the effects of the wind on these light, fine particles of matter.

SONG AND SAP

A few minutes before seven in the April evening, nearer dark than dusk, the blackbirds were singing as earnestly as the thrushes, and for half an hour there was one of those bird babels peculiar to soft and moist rather than brilliant weather in April and the last fortnight of March. At sundown the sky presents none of those ethereal after-glows—pure, faint washes of yellow and lustrous blue—which we look for at the zenith of summer. The western horizon is rather cloudy, and but for a strip of cirro-stratus here and there, flushed with purple or pink, the scene would be a monochrome. Then every thrush and redbreast in the shrubberies, parks, and plantations around us throws himself into song, and sometimes the more fastidious blackbirds are drawn in. The result is not altogether happy if we wish to catch the notes of each of these three singers at their best; there is too much confusion, a tangle, a jangle of melodies. But the thing means Spring. It is

impossible at another season. It is the sap of song surging through the veins of the bird as sap must be surging very soon through the veins of every growing thing.

I can scarcely recall a half-hour filled fuller of bird notes than this March one, save perhaps the half-hour or so after dawn in June, when the larks are all up and not a fraction of an instant is without its lark note. The crammed chorus of skylarks at the summit of the year is the finest ecstasy of the kind one can hear, but this medley of thrushes, blackbirds, and redbreasts on moist March and April evenings can be compared with it.

It seems hopeless trying to get into words any true notion of an outburst of bird song like this. Perhaps a Turner in the management of words, and in the ear for such sounds, will one day be born to write it all down; just as at length there came the Turner to catch the sunsets and veils of mist and storms at sea, and get them, as by a miracle, on to canvas. Art had waited thousands of years for him.

THE LEAF WARBLER

The word delicacy fits most of the "warblers" that come to us in spring. It fits the redstart, the blackcap, and the garden warbler, and the whitethroats, and the nightingale, too, in a way, though there is nothing exactly delicate in the nightingale's notes—rather they are full of power and passion. But it best fits the three winsome little birds that

have been grouped together as " the leaf warblers." " Leaf warblers " probably because of their yellow and greeny tints, that match well enough the fresh spring tints of the trees they frequent ; although, also, the name fits them rather nicely in the matter of size—the leaf of a willow or elm is near enough the size of a chiffchaff to give it a name. It is hard to imagine any shapely little bird more delicate in build, more delicate in the way in which it picks its dainty path among the hedges and the woodland trees and underwoods, than a chiffchaff or a willow warbler.

Delicacy of build does not always imply delicacy of constitution. The leaf warblers are so delicate in build that they look as if they must go down before a few sharp nights of frost and days of bitter wind. Yet it is far from being so with the chiff-chaff, the smallest of the three. A chiff-chaff will now and then be heard at the close of February even,* and quite often by mid-March, though I do not know that I have heard or seen it myself in England till about the end of the month. A chiff-chaff " takes the winds of March with beauty."

Early in April, no matter how bitter the weather, the willow warbler begins to come in, and a week or so later the wood warbler, the largest of the group, follows. Between chiff-chaff and the wood warbler is less than an inch in difference of length ; and between willow warbler and wood warbler the

* I heard him at the end of February in 1911 high up in the Atlas Mountains of North Africa, a delicious experience.

difference is so minute it can only be measured at a little distance by the long-practised eye. Yet when we know the birds well, and have watched the three in their nesting haunts, there is no mistaking a wood warbler for a chiff-chaff, or even for a willow warbler. It is another thing to be sure at a glance whether we are looking at a chiff-chaff or a willow warbler. The movements of these two are to me identical: the distinction lies in the colouring.

The chiff-chaff's legs are darker than the willow warbler's, and its spring dress has less yellow about it than the willow warbler's. The songs no one could confuse, for there is nothing in common between them. The garden warbler has much in common with the blackcap in its music, whereas these three little sylphs have evolved three utterly dissimilar songs. They have notes of anxiety that can be confused, but the songs are as those of birds not distantly allied.

The willow warbler is perhaps the only one that has melody. It has been styled a "merry," or "joyous" singer. I question the word "merry" applied to the willow warbler's song. Now, the common wren's song *has* the merry ring—it sounds all jollity. But surely the characteristic of the willow warbler's dropping song, its diminuendo—it begins high and ends low and feeble—is plaintiveness, not jollity. No doubt it is a sign and song of joy, just as is the wren's liveliest ditty; no doubt, there is "sweetness in the sad;" but not the less it is the plaintive note that appeals to us in the

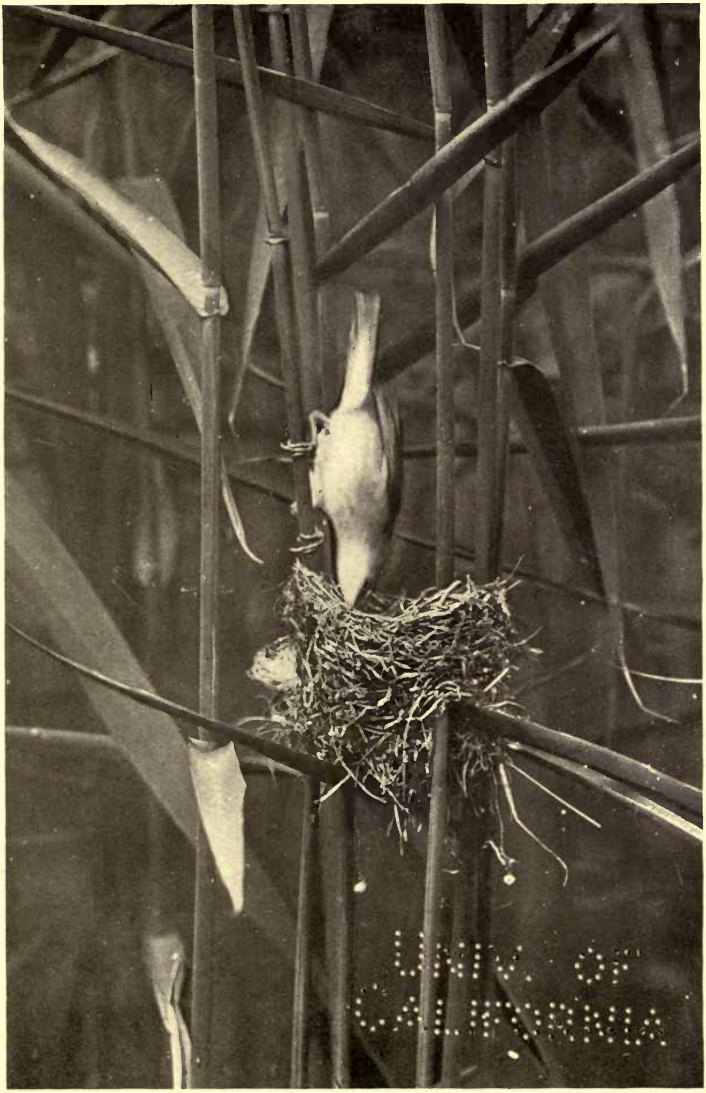

Photo. W. Farren

A REED WARBLER REACHING DOWN TO CLEAN OUT HER NEST

song of the willow warbler as it does in the redbreast's.

The chiff-chaff's song, which is not at all plaintive, is just the constant repetition of "zip, zap; zip, zap," beaten out from the tree-top; there are some indefinable, baby-like notes that precede this call, but they are uttered in a very low key. I do not claim to have discovered them, but I believe I was first to record them a few years ago.

In boyhood the best thing about a leaf warbler was its nest and eggs, and to this day I rejoice to find the chiff-chaff's nest.* By a long way it is the choicest nest of the three, because it is slightly off the ground, and therefore more compact and finely knit. The willow warbler and the wood warbler build on the ground, weave their nests into the moss or tangle of dead and living grasses and undergrowth. I have only found two wood warblers' nests, and neither was very neat. The willow warbler's nest is a better bit of work, because it is lined with feathers, but the chiff-chaff will sometimes make a gem of a nest a foot above the ground, in brambles or grassy undergrowth. I have seen once or twice a chiff-chaff's nest that almost challenged a wren's in its careful fine-finished workmanship. Only, being domed, as are all three leaf warblers' nests, it has not that small, round, firm-stitched entrance

* At the beginning of July, 1912, on the railway bank between Hook and Basingstoke, I found a beautiful specimen slung in the brambles and undergrowth. The white, red-freckled eggs shone on their bed of feathers, a lovely sight.

that is so wonderful a thing in some wrens' nests. Nor does the chiff-chaff use such binding material in her building as the wren; the wonder is that, with such unpromising loose stuff as dead leaves and coarse, broad grasses, she can contrive a firm nest at all.

TITMOUSE INTELLIGENCE

A friend thinks I underrate a titmouse's intelligence in doubting much whether the long tailed titmouse would turn to a tree because its first nest in a low bush has been spoilt. He believes that individual birds often have remarkable reasoning power, and gives an example: "My children had hung a piece of suet by a string about fifteen inches long from the branch of a fruit tree, and a great titmouse, or ox eye, failed to get a sure foothold on it, though blue and cole titmice had been successful. He hopped from branch to branch, but could not better his position. Then he flitted to the branch the string was tied on, perched above it, reached as far down as he could, and drew up the string loop by loop, securing each haul under his feet until he had lifted the suet to the branch. There he enjoyed it."

He adds that he saw this himself, and thinks I, too, may have seen cases of the sort. But I never have. I can only say the thing would amaze me.*

* Since this was written others have told me of the titmouse feat. I cannot doubt them, but the titmouse perhaps has been trained in Nature to some like action, as the redpoll is trained by man.

In the intelligence of the body, in unerring physical feats of quick and sure action, wild animals are superbly equipped. They are as much our superiors in this *logic of body*, as we are theirs in the logic of mind. They are often immensely above us in their senses of sight, sound, scent, touch. These feats and exercises are all written large in the mysterious history of their evolution. They reached their present state and form by these agencies, rather than by the agencies of the understanding or brain. How, then, can we expect birds, beasts, and insects, whose evolution has been almost wholly the evolution of the body, to shine in the realm of reasoning ?

It seems to me that we should not more expect the wild bird suddenly to solve a problem of the mind which it has never before considered than we should expect a civilized man to migrate as a bird migrates, or with his fingers form the perfect, symmetrical wax-cell of the honey-bee.

As for this great titmouse that solved the problem of the string and suet, I can only say it seems to me wiser than the most cunning jackdaw or magpie I have heard of. Nature abhors a leap. But surely she takes a leap in such a case as that.

Even with plants and trees the intelligence of the body is far more highly developed than with us. Thus, the root of the tree growing in some stony, inhospitable spot will find its way in the dark of the earth to soil or to moisture in a manner we cannot explain. It is as if the tree knew—were endowed with something answering to human intelligence.

Yet, faced by problems simple even to an infant whose understanding is just lighting up, bird and beast are wholly lost. The logic of a dog is probably the best logic of the mind in the animal world outside ourselves. Yet who has really known a dog that "reasoned"?

ILLUMINED GREBES

I know scarcely a surer touch of early spring—though it is a small touch—than brephos on the wing once more, the gay little orange underwing moth of daylight. Seen aloft, among the birch trees, in the spring sunshine, brephos, as it flutters along in its vague way, looks exactly like the brown vapourer moth of early autumn. It may come out in the last three or four days of March perhaps, after a day and night of soaking wet; and year after year I have seen it among the birch plantations on the same kind of day in early spring, sometimes in March, more often perhaps in April—a day of divine air and sunshine, when one hopes to hear the notes of the earliest chiff-chaff and when blackbirds are crooning and singing in snatches in the morning. Another touch of early spring is the return to their nesting quarters of the great crested grebes which spend the winter on the sea coast. There are many bays along the south coast where the grebes can be seen in winter. Near Poole Harbour in December I watched one quite close to the strand. A few weeks before I had seen a pair a little further out at sea, near a party of half a dozen tufted ducks. The

crested grebes, watched at this season through glasses, take on those very lovely, volatile colours which, in the right state of light, we see on the plumage of swans, coots, and pochards. That of the swans is far the finest, the intense glows of pure blue and yellow shot over the pure white being so extensive. The colours about the grebes I have only noticed quite lately, looking at them when the sun has been behind shifting clouds. All round the head and neck of the birds appears a rim of volatile or spirituous yellow, of the deeper orange hue of canary yellow, perhaps; whilst about the back of the bird is a film of intense violet. But, the grebe shifting round, this violet will sometimes take the place of the yellow about the head and neck, so that the hues appear to shift more often than I have seen them shift on the swans.

Besides swans, pochards, coots, and grebes, black-headed gulls show the same colours in like states of light, when they are watched through glasses. I am not sure, but I think that the volatile hue which I noticed on the gulls as they flew along the edge of the sea in December was the rosy one. Why are volatile colours shown on these water birds? I have not seen them on land birds, though perhaps they appear on some that are high polished, as rook, dove and lapwing. Is the cause of this colour in the oiliness which lies about the plumage of many water birds? Such oily films often show the brilliant "interference colours." A little pool of spilt petrol on the dusty highway shows them

instantly in almost any light, and here they are seen —as they are not seen on the plumage of the swan and grebe—without the aid of glasses.

THE WREN'S NEST

Nest making by the cock wren in April is so usual that I have wondered whether the hen bird builds at all early in the season. If you find an empty wren's nest in April, the chances are it is the work of a cock bird. But the building of the cock wren by no means ends in April. He is still building all by himself in the middle of May, probably later. Now, before the leaf is thick, is the time to find these beautiful nests, and to watch the architects at work. It is not hard, when we know the haunts and habits of wrens, to find the nests and see the singular cock-tailed little things fetching and carrying the material, constantly popping in and out of the tiny, round, dark entrances. Once the outside of the nest, however, is complete, we cannot get a good glimpse of the builder arranging and pressing into place his material: the most we can hope to see through the entrance at very close quarters is some quick, shivering little movements, the meaning of which is not clear to me. I know of a nest in the dark fir wood, another in the hornbeam hedge. That in the fir wood hangs about eighteen inches from the ground, among dead stems and litter of larch: it matches almost exactly its environment in colour—grey and brown—but otherwise is rather noticeable, a ball of dead leaves and moss hanging in very thin

cover against the larch tree. But the other nest is one of the type which assimilates so exactly, so wonderfully, to environment in form and material that we ask ourselves—can such an arrangement be anything save deliberate, a device? Has not the cock wren taken pains down to minute detail to hide the nest, make it invisible? I cannot make up my mind about this, probably I never shall, for one instance flatly contradicts another, and there are such reasonable arguments against as there are such appearances for the theory.

This nest is built among the scrubby growth of a thick knobby stem of hornbeam, round which ivy is twined. You find it by seeing the bird go in or come out, and by no other means. If you did not know there was a nest, you might at a yard's distance peer intently at the cankered hornbeam stem and discover nothing. It fits precisely its position, and there is not a scrap of untidy moss or other material that might make you suspect the existence of a nest in the stem. First, I watched from a spot eight yards away the cock wren going in and out with his building material; I reduced this distance gradually to about four yards. He suffered me at these close quarters with little sign of uneasiness; he even sang his ditty once or twice on a twig just outside the nest, facing me the while: he pecked two tiny insects off a leaf on the outside of his nest, he came and went freely. But when I reduced the four yards by two or three, he grew shy, and left off building.

"SHORT SWALLOW FLIGHTS."

Many acts of birds are drolly like human action when courtship or rivalry is the motive. The ring doves billing and cooing, and (literally) kissing each other in April, the wagtails feeding their wives—here are instances. Watching the wagtails (grey and pied), I am sure that the motive answers closely to human motive. It is the husband, in a spirit of sex gallantry, of loving-kindness to his mate, picking out dainty dishes for her.

But here is a still droller bit of humanity about the swallows. A pair sit on my chimney, the male singing sweetly, and sometimes darting off his perch for a few seconds to chase away an intruding sparrow. Presently he will fly up and round the chimney, calling to his mate. As plain as plain can be, he asks her to come with him for a flight. Again and again he sweeps down, and in passing touches or all but touches her beak with his beak, twittering the while.

She does not accept the offer on the first evening perhaps. He flies off to join the swallow throng without her. But next evening the invitation is repeated and accepted. After he has several times swept down and touched or all but touched her, she rises, and together they fly away and join the large swallow party over the meadow.

REED BUNTINGS

Through the winter there is scarcely a more forlorn looking small bird than the reed bunting. It is songless at all seasons, I think. Compared with it the corn bunting with a wheezy stutter is a sort of singer, the yellowhammer quite a performer, and the cirl bunting almost a musician—indeed, the note of the cirl at its best and strongest is really pleasant to the ear. Whereas all the sound the reed bunting makes is a thin cry wholly without merit. A pair of wandering reed buntings on a leafless tree in the water meadows crying in a disconsolate way " wheet, wheet " can put the last touch of cheerlessness to the darkest, chilliest winter afternoon.

But in April the reed bunting is another bird. He has not got a new voice, but he is distinctly a pretty and sprightly bird with his very black bonnet and his white collar. Look at a reed bunting on a platform of cut and floating weeds caught in a river backwash, and his claim to beauty is clear at once. I have watched him hopping about the weed platforms, and even when a grey wagtail—the smartest bird, with the yellow wagtail, that flies by an English stream—alights beside him, he is not completely outclassed. His brown striped back is so finely done, and at this season he looks turned out brand new.

The grey wagtails have already made their nests ere April is out, and are warming their eggs to life. I am sure of this, for I saw a hen grey wagtail come

down to a slip of turf by the river's edge and gather together a mouthful of insect food. She took it partly in the air by those little butterfly flights, of her kind, and partly she picked it off the ground and the weed platforms. I think she can hardly have young yet, and must have been getting food for her mate, who was taking a turn on the eggs. But it was one or the other, for I saw her slender beak bulging out with her dainties.

The reed buntings have hardly begun to nest or to lay so early. They are all day searching for the water flies which the trout angler strives to imitate. Several birds feed on " duns " or small ephemeridæ and the mayflies. The chaffinch often comes down to the stream for these insects in spring and summer, whilst the sand martins and swallows and house martins—and sometimes the swifts—seek this food from morn till eve.

But the reed bunting, though it has none of the speed on the wing or ease over the water of martins and swallows and swifts, marks the " rise " or hatch of the " duns " as closely as a trout marks it. Perched on the débris of the stream, or watchful among the willows and sedges, it will flutter out and seize the little water flies as they sail downstream and are swept close to the bank by the currents. The " small fly " hatch, as anglers name it, is in many rivers restricted to two or three hours in each spring day—nobody knows why—and I notice the reed buntings waiting for this hatch, as expectant as the angler, who knows that when it comes on the

fish will move. Hence the reed bunting is a constant companion of the trout-fisher.

REDSHANKS

The most volatile of the wading and marsh haunting birds may be the redshank. The dunlins rest after their drill in the morning, but what rest is there for a redshank ? On the ground at the nesting time it is mobile as a sandpiper or grey wagtail, and all through the season it is constantly on the wing, in a state of emotion. I watched it on the New Forest marshes during hard frosts in January. There were redshanks on the wet heath by Brockenhurst ; though undisturbed by human intruder, they were ever on the wing, circling wildly round the forest ponies and cattle, and calling with the rather sweet, anxious note that faintly sounds like a quick uttered " took, took," or " tuk, tuk."

This was long before the pairing passion can have stirred them. All through the winter redshanks are circling about their marshy haunts and crying. In spring their excitement grows. I went to watch them on the estuary meadows by Christchurch, and the sandy stony fields, where at this time they are often mingled with the ringed plovers and with lapwings and starlings. " Took, took," is heard as soon as one reaches the estuary, and a white-barred wing is seen flitting about amidst the starling parties.

The starlings are intent only on food. They are incessantly up and off to a new spot, and at every starling movement the long pointed wing of a red-

shank is seen in the air. These movements of the redshanks are not so intense and agitated as the movements of the bird when the hen is on her eggs and an intruder comes near. But the action of the redshank's wing, I think, is always the same. It has a kind of stiff, quick jerk not unlike that of turtle doves at full flight.

When first I watched redshanks in a water meadow by the Test I thought this curious jerking action might be a kind of love flight only, a wing ecstasy like the snipe's, or the woodcock's. But redshanks always jerk stiffly through the air. The strokes are many, ending and beginning suddenly. The stroke may remind one of that of an imperfect rower who clips or does not finish his stroke well. With such long, fine tapered wings, one would look for strong, smooth action in the redshank. The flight, however, though the individual stroke seem short and clipped, is powerful enough. The redshank could migrate against any bird.

Near where the redshank cries and circles through the year is the withy wood at the back of the headland from which the notes of willow wren and chiff-chaff always come by mid-April. I missed the earliest willow wrens at the estuary . . . but, hark, even as I write this in the open air the first song of the bird, delicious as ever, sounds from the edge of the sea cliff!

The first willow wren is as good as the first swallow. Once more an English spring!

INDEX

Ailsa Crag, 176
Allingham, Mrs., 179
Animal mind, the, 108
" A Pair of Blue Eyes," 153
Apennines, birds in the, 38
Aris Willmott, 50
Arnold, Matthew, 89
Arundel, Major, 58
Atlas Mountains, 131, 233
Bahr, T. H., 204
Bass Rock, 174
Beaulieu Heath, 195
Birds at dawn, 182
Birds Clock, 56
Beehawk moth, 15
Birket Foster, 179
Blackbird, 3
Blackbird, Moorish, 6
Blackcap, 37, 39
Bloomfield, Robert, 140
Bryony, black, 131
Bugle field, 15
Bullfinches, 189
Bunting, cirl, 207
Bunting, corn, 27
Bunting, reed, 243
Butterfly of Paradise, 98
Butterfly's armoury, 51
Butterfly Year, 142
Buzzards, 33, 70
Chaffinch, 169, 185, 192, 219
Chesterman, Mrs., 133
Chervils, 24
Chiffchaff, 233, 235
Clare, 140
Cleopatra butterfly, 90
Coleridge, 51, 155
Colour in birds, 88
Colour in winter, 188
Competition in the wood, 181
Cowdray Park, 192
Crake, Baillon's, 13
Crakes, 12
Crawley, A. E., 117
Cuckoo, 60, 73
Culpepper, 133
Darwin, Miss A. E., 116
Dawn, birds at, 184
Depressa dragon-fly, 89
Dipper, 131
Duke of Burgundy fritillary butterfly, 15, 144
Dunlin, 151, 212, 220
Durley Chine sunsets, 79, 87
Eagle, golden, 81
Eight of Flight, 196
Eyes, birds', 154
Falcon, Peregrine, 84
Flight in storm, 200
Gannet, 176
Gerarde, 133
Ghost-moth, 47
Glen Tana, 81
" Glory of Provence" butterfly, 90
Goldcrest, 166, 168, 193
Grebes, 12, 238
Greenfinch, 105
Guillemots, 71
Gulls' flight, 90
Gull, great black-backed, 215
Gull, herring, 64, 72
Gull, lesser black-backed, 71
Hammam Rhira, 38
Hardy, Thomas, 152
Harrier, Montagu's, 29
Harvest scene, 114
Hayfield flowers, 69
Hengistbury Head, 215
Hodgson, Ralph, 102
Hollands Wood, 89
" Humanising " Nature, 152
Humming bird hawk-moth, 15
Jackdaw, 85
Keats, 61
Kestrel, 165
Kipling, Rudyard, 152
Kittiwake, 177
Landor, 160
Landrail, 14
Lane, an English, 177
Lascelles, Gerald, the Hon., 33

Light, Spoiling of, 217
"Life and Sport in Hampshire," 134
Linnet, 25, 161, 209
Longparish, 185
Lye Rock, 80, 85
MALAN, E. C., 196, 204
Marey, 48, 198
Mark Ash beeches, 31
Marsa, Arab village of, 15
Marseilles, stuffed swifts at, 118
Martin, house, 104
Meteor, 224
Micheldever, song thrush at, 57
Moorhen, 10
Monte Pellegrino, 39
NEPTICULA AURELLA, 167
Newton, 51
Nightingale, 40
Nightjar, 59, 61
November day, 160
OAKLEY, HAMPSHIRE, 47
Orange-tip butterfly, 146
PEARL-BORDERED FRITILLARY BUTTERFLIES, 16
Pettigrew, 48, 196, 198
Pheasant, 9
Pipit's, tree, coppice, 14
Pochard, 154
Puffin, 73
Purple Emperor butterfly, 95
RAILS, 12
Razorbills, 71
Redbreast, 73, 139
Redshank, 30, 245
Redstart, 59
Redwing, 147
Ring dove, 48, 119
Ring ouzel, 131
Roosevelt, Theodore, 153
SAHARA DESERT, 67
Salix repens, 31
San Giovanni degli Eremeti, church of, 42
Sardinian warbler, 41
September, 119
Sicily, Birds in, 38
Skipper, dingy, butterfly, 15
Skipper, grizzled, butterfly, 15
Skua, Arctic, 64
Snipe, 204
Song, 158, 231
Sorrel, wood, 207
Speckled wood, 66
Speedwell coppices, 18
Spotted yellow moth, 93
Starling, 121, 124, 150
St. Leonard's Forest, 43
Stonechat, 165, 171
Sussex scenery, 123
Swallow, 20, 59, 78, 242
Swan, 216
Sweet gale, 31
Swift, 1, 7, 34, 63, 116
Swift and bombilius compared, 8
"THE AIRY WAY," 35
"The Glamour of the Earth," 179
"The Green World," 134
"The Return of the Native," 153
Thomson's "Seasons," 140
Thrush, missel, 206, 226
Thrush, song, 136, 224
Titmouse, cole, 114
Titmouse, great, 112
Titmouse intelligence, 236
Titmouse, long-tailed, 168, 194
Titmouse, marsh, 112
Tintagel, 65
VILLAGE WORDS, 187
WAGTAIL, grey, 3, 131, 243
Wagtail, pied, 3, 103, 134
Wagtails, 1
Wagtail, yellow, 2
Warbler, Dartford, 159
Warbler, garden, 6
Warblers in Algeria, 38
Warblers, 232
Warbler, willow, 234, 246
Warbler, wood, 42
Weismann, Professor, 52
Whinchat, 59
Whitethroats, 7, 21, 22
Whitethroat, lesser, 22
Wind, effect of, 228
Winter sea, 163
Wordsworth, 105
Wren, 127, 240
YEAR OF BIRDS, 138
ZENITH OF THE YEAR, 36

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